



FRIDAY, OCTOBER 2.

Contributions.

The Smillie Coupler.

[In our last issue we pointed out that there was some question whether the Smillie coupler should be described as a fast or a loose link coupler. We have been asked to insert the following letter on this point:]

"We have used the Smillie coupler in the yard on our flat cars day and night for the last eighteen months, and also on the road. The couplers are in as good condition to-day as when first put on. It has a fastened link and pin, and cannot be detached or broken from the coupler unless purposely done.

A. REASONER,

"Supt. Morris & Essex Division Delaware, Lackawanna & Western Railroad."

Fuel Consumption of Locomotives.

Norfolk Southern Railroad Co.,
General Manager's Office,
Norfolk, Va., Sept. 25, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The article about consumption of coal per mile on English and American railroads, in the *Railroad Gazette* of the 11th inst., page 585, prompted the following showing of comparative consumption and performance on this road, believing that it sustains the conclusions of the article:

	1882	11 mos. fiscal year. 1885.	Per cent. Inc. Dec.
Av. No. cars per train, all trains	9.23	12.80	38.5
Tons per car hauled, loaded and empty, exclusive of pas. trains	4.00	4.87	21.7
Tons per loaded car	5.34	7.71	44.3
Tons per fr't train, paying load	49.43	86.51	75.9
Approximate weight per train, all trains	177.0	174.0	0.17
Pounds of coal consumed:			
Per train-mile	45.35	55.36	22.0
" engine	34.19	41.	20.0
" car	6.04	5.40	10.05
" gross ton hauled	16.51	18.71	13.1

Of the six engines in use, 8-wheeled, four are Baldwin, of which three have 13 x 22 cylinders and 54-in. drivers, and one 14 x 22 cylinders and 61-in. drivers; one is a Manchester, 13 x 24 and 54-in. drivers, and one a Norris, 13 x 20 and 60-in. drivers; all of them burn West Virginia bituminous coal.

The road, built in 1881, has no grades of moment, but has considerable sharp curvature. The traffic is chiefly products of the locality—corn, cotton, timber, fish and truck—moving one way. The cotton and truck fill cars without weighting them to capacity, and the timber, largely logs, does not permit record of actual tonnage; hence the apparent small load per car.

M. K. KING, General Manager.

Relative Durability of Simple and Compound Paints

The following paper was read at the recent convention of the Master Car-Painters' Association in Toronto by Mr. Charles E. Copp, Master Painter of the Boston & Maine Railroad:

1. Question.—"Is a car body color composed of one durable pigment more durable than a color composed of two or more pigments?"

This question, which has been assigned me to open, is a vital one, especially so, as there is here in the East—I do not know how it is in the West—quite a craze to adopt a dark color; and in the composition of that color, some, whose authority it is to adopt a certain color, remind me of the saying of my aged grandfather, who was fond of that pioneer New England dish, "pudding and milk," and who insisted on putting in his piece of apple pie with it and eating it all together, remarking, when remonstrated with: "The more good things, the better." There seems to have existed in the dreamy eyes of some President of some railroad, or other high official, a certain unheeded and unnamable dark color which the painter is expected to produce by the admixture of a little of this and a little more of that, or something else—no matter what, as long as the color to suit is obtained; and when it is at last reached it is declared to be the thing; and it is rushed on to the cars regardless of time or expense. And after a lot of cars have been done over, it is remarked by the simple-minded, "How much better they look." Of course they look better, because so many have been newly painted and they are uniform and all shine together; but time—that inexorable judge—will render his own verdict, as he has done heretofore in the case of a new error which has seemed to be better than an old truth.

In opening this question, however, I do not appear in the rôle of a judge, but rather of an advocate, contending simply for my opinion, briefly touching a few salient points; and, if I can offer that which will touch your thought-springs and set you all to presenting your opinions—all to be candidly received and considered—I shall be satisfied. It seems to me, however, without wishing to appear egotistical, that there can be but one decision which you will all reach sooner or later, and that is: A car body color composed of one durable pigment will last the longest. True, it is a matter which a knowledge of chemistry must decide; and such a knowledge, obtained from theoretical study, few of us have; but a practical experience has given us a sprinkling of this knowledge, which serves as a light by which we can cautiously make our way, if we do not start off with the strides that we might, were we analytical chemists. There seems to be some analogous reasoning which might be introduced here, drawn from a little medical information. The time used to be when the old doctors thought that the more good things they got together in a recipe or prescription for a sick man, the sooner he would be cured, little thinking of the result of the chemical action which these drugs might exert upon one another, which later thought has discovered. And now it is considered the height of medical skill to cure a disease with one specific drug, which is commonly done. Need

I say that it is the height of the painter's skill to obtain his color with one pigment, if possible; but if not, with the fewest number, for the same reason? It is said that an old doctor used to put all the odd bits of medicine, which he had left in treating cases, into a jug, and used to tell his student that if he could not cure a patient with anything else, he gave them a dose out of the jug! And I think it would be well for the painter on some railroads that I know of to have a jug into which they could put their odd bits of paint; and then when they get a case of "touching up" that they cannot match with anything else—and they are liable to have them frequently with such a compound as their color is made of—they can give it a dose from the jug! Again, a man of means with an aesthetic eye might desire to overdo his neighbor, and put into his artificial fish pond all kinds of fish, great and small, an almost endless variety; but he would soon discover that the big fish had eaten the little ones all up.

And it is precisely so with paint; the most durable pigment—the one which is good enough to be used alone—is put with others of a weaker nature; and a prettier color, to be sure, is obtained on the start; but in a short time it is discovered that the weaker colors in the compound have been eaten up by the stronger, and the result is a new color entirely. I have a case in point: I know an old painter who painted his own house, several years ago, a beautiful grey, composed of white, Indian red and Prussian blue; the result was in a few years he had a pink colored house, the Indian red having eaten up the blue almost entirely. In fact, it seems to be a principle running through all nature that too much mixing and compounding of things together is dangerous or unwise, to say the least. The food we eat would tend to the durability of our health better if partaken of more in simplicity, one kind at a time, or a very few kinds at least; and the drink—what intemperate man does not know the grief that comes from "mixed drinks"? What is better, after all, than pure water? But it is no doubt true that there can be a union of two pigments which would make a more durable paint than either one of those pigments would alone, the same as the crossing of species in animal or vegetable nature sometimes turns out a stronger and better kind than either of the two alone which entered into the union. It is an old saying, you know, that "in union there is strength," but it makes a difference what the union is composed of, what the nature of the component parts. And yet this does not argue but that there may be a single pigment which is more durable than ten others which you may put together. In fact, I think that lampblack, the most durable pigment known to chemistry, and Indian red or some other mineral, used alone will outwear any combinations into paint may be made. But the compounding of pigments into paint is all a matter of chemistry, which alone must settle what will do to become united to produce an unfading compound. However, past experience does not show that theoretical chemistry has given us anything to brag of; it has come to us rather by the hard knocks, hopes, doubts and fears of a personal experience at the work, which perhaps is the only way painters can ever get a knowledge of chemistry which applies to their business—a way that is well enough to get wit; as the old adage has it—"Bought wit is better than taught wit, if you don't buy it too dear." One thing seems certain, those who are fortunate enough to get a good education and become thorough in chemistry consider themselves too fortunate to become practical painters, and those who are, perhaps, unfortunate enough to have to paint for a living seldom have the time or means to procure a theoretical knowledge of chemistry, i. e., from books. Therefore, if I were a railroad official who disliked the color of my cars and wished to change it (that task is in no danger of falling into my hands, because I am the painter), I would look into nature first to see what I could find for a color. No, I would not; I would confer with my painter, and yield to his judgment, if I had one good for anything; and if I had not, I would get one. Then, if I were thus empowered by the Master Car-Builders' Association, or whomsoever I was under, to see what I could find for a color, I would, as I said before, look into nature first—into the mineral world—to see what she had for me for a single item to make a paint out of; then if she had not what I wanted, I would consult chemistry to find that which, used singly, or at most by a union of two, would produce what I wanted. I would do all this before I had decided upon a color and went scouring around among pots and pans to see what would make it, which is most always the case, I am sorry to say. The cart has got to go too much before the horse; color first, and what it is made of secondarily. But we can afford to forego a little beauty of color when new to get something that is abiding. Let us look around in nature and in chemistry, to see what will be an abiding color to use first, and then consider its beauty secondarily. What looks worse than a streaked, faded, dingy color which has enough of it left to remind you of its former beauty? Who can point the finger of scorn to a quiet, sombre, plain, Quakerish-looking paint, made, perhaps, of one mineral, or lead added? Modestly decorated, that holds its own well down to the burning-off time. This is a great age of talked-of uniformity in the appearance of rolling stock upon railroads, but I submit that the end never will be reached till more common sense enters into the selection of a body color for passenger cars. And here let me say that I do not set myself up as having attained to perfection in the matter. I have really given the subject more thought than actual experience, for the color of the passenger cars on my road—made of white lead and stone yellow, which has been in use ever since the road started, for aught I know, and gives good satisfaction—seems to be a fixed matter; and I do not at present know of a better choice to make were I to try, as I am in favor of a light color so far. Yet I have no doubt there is a single mineral or chemical production which would excel it in many respects. But I had been thinking over this matter for years previous to the letter of request desiring me to take it, hence I throw out these hints for you to think and discuss at length, hoping that good may be elicited therefrom.

The Car Coupler Tests at Buffalo.

The following, which appeared in a recent issue of the *Buffalo Courier*, explains itself:

To the Editor of The Courier:

I saw to-day, in your issue of the 19th inst., a letter from one G. W. Mills, attacking the Executive Committee of the Master Car-Builders' Association for its action in the recent coupler test at Buffalo.

Without any intention of engaging in any controversy with Mr. Mills or any one else in regard to the Committee, their action or intention, will say it would have been fairer had Mr. Mills informed the public which of the rejected couplers he represented or was interested in, and the Committee might then have been able to tell him the reason his was not included among those put on probation.

Further, he charges the Committee with being biased in their action.

For myself, I can say that the only thing that influenced me was a full knowledge of my responsibilities in the matter, and a desire to simplify as much as possible a problem which will be admitted by all as being most complex, and is every day becoming more so.

In reference to the charges that I or any other member of

the Executive Committee was guided by any other reasons than honest ones in making our decisions, I pronounce them false in every particular.

In making this charge Mr. Mills has evidently judged the Committee by what he would have done had he been in their place. In making this reply I may be giving too much prominence to Mr. Mills, who evidently is in search of notoriety.

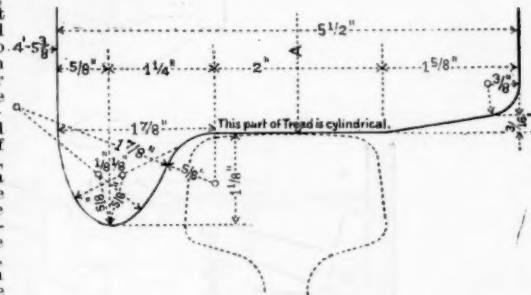
Yours truly,

F. M. WILDER.

Master Car-Builders' Association.

Mr. M. N. Forney, Secretary, issues, under date of Sept. 22, the following announcement of the results of the letter ballot on the adoption of a standard wheel tread and flange:

"On the question, 'Are you in favor of the adoption of the form of section, shown by the engraving in the accompanying circular, as a standard for the treads and flanges of cast-iron and steel-tired wheels?' there were 233 affirmative and 146 negative votes cast by the members of the Master Car-Builders' Association. As two-thirds of all the votes cast are required for the adoption of a standard, and as the



proposed 'form of section for the treads and flanges of cast-iron and steel-tired wheels' has not received that proportion of the votes, it is NOT ADOPTED.

"On the question, 'Are you in favor of the adoption of the limits of 'variation' from the standard distance between the backs of flanges recommended by the Committee, and described in the circular?' there were 368 affirmative and 14 negative votes cast. The 'limits of variation'—4 ft. 5 1/2 in. and 4 ft. 5 1/2 in.—are therefore adopted as standard dimensions of the Master Car-Builders' Association."

The accompanying cut shows on a reduced scale the form of wheel-tread which was proposed, but not adopted. A full-size cut was published in our issue for June 12 last.

The Chignecto Marine Railroad.

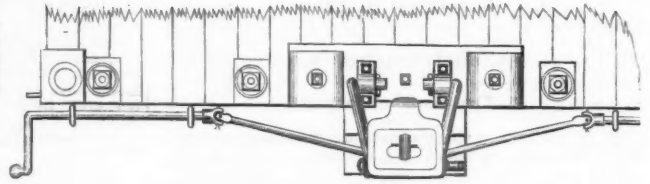
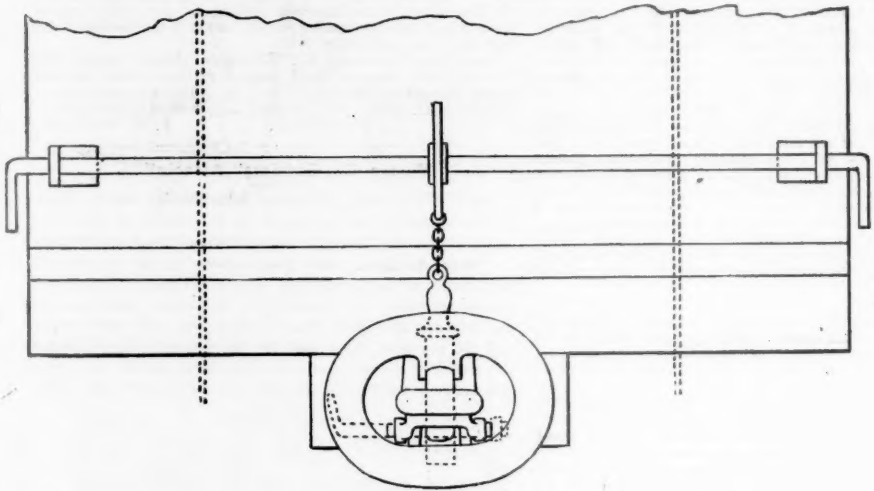
The Chignecto Marine Transport Railway is making gratifying progress. Since the clearing was commenced three months ago, 10 miles have been completed, and there now remain only 7 miles more to do to finish this portion of the work. The construction of the road-bed will immediately follow the completion of the clearing.

The practicability of lifting steam and sailing vessels out of their natural element and transporting them overland is accepted with considerable doubt by those unacquainted with engineering. Why these doubts should exist is not clear. A ship railway, such as it is proposed to construct across the Chignecto Isthmus, is simply the adoption and combination of two well known and successfully applied engineering principles. For many years vessels with cargoes have been lifted without accident in Victoria dock, London, and by the hydraulic ship lifts at Bombay and Malta. In each of these docks vessels of a greater size and weight than any likely to be engaged in the Bay of Fundy and Gulf of St. Lawrence trade have been raised clear of the water while being repaired. As the lifts which are to be used at the two ends of the Chignecto Marine Railway are to be identical with those above enumerated, all of which have now been in operation for over 15 years, it is only fair to presume that the Chignecto lifts will be operated with equal success as those at London, Bombay and Malta. In the last-mentioned dock, within a short time, the following cargo-laden vessels, which are but a few of the many, have been raised. [It is unnecessary to give the list. It embraces the names of 9 vessels, whose total dead weight, cargoes included, ranged from 2,255 tons to 5,580.] If any additional testimony were necessary, it is obtainable in the statement of the President of the New York Balance Dock Co., who furnishes the following list of vessels taken out on his dock with cargoes in them. [This list embraces 5 ships and 5 steamers, with a tonnage ranging from 1,905 to 2,765.]

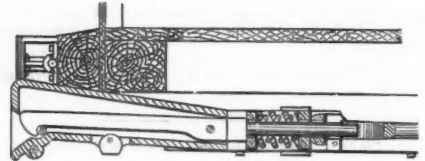
Respecting the transportation of ships overland: In all probability the Chignecto Marine Railway will be the first road of the kind to be built. But still the principle is not new by any means. In scores of places in different parts of the world marine railways have been successfully operated, and hundreds of vessels of every size, with and without cargoes, have been drawn out of the water on them and repaired. As to the success of marine railways for this purpose, it is just as well to let one who has had experience testify. Mr. Epes Sargent, writing to Mr. Corbelle, an engineer of prominence, says of one marine railway:

"In reply to your questions, I would state that I was manager and superintendent of the Marine Railway, Nassau, N. P. (Bahamas), for 10 years, and during that time, as near as I can remember, I hauled out and repaired between 800 and 900 vessels, about one-third of which were steamers and perhaps one-fifth of them loaded. As we charged so much per ton for cargo on board, as far as practicable the vessels were discharged before being taken out. My experience was that it was easier and safer to take out a loaded vessel than one in ballast."

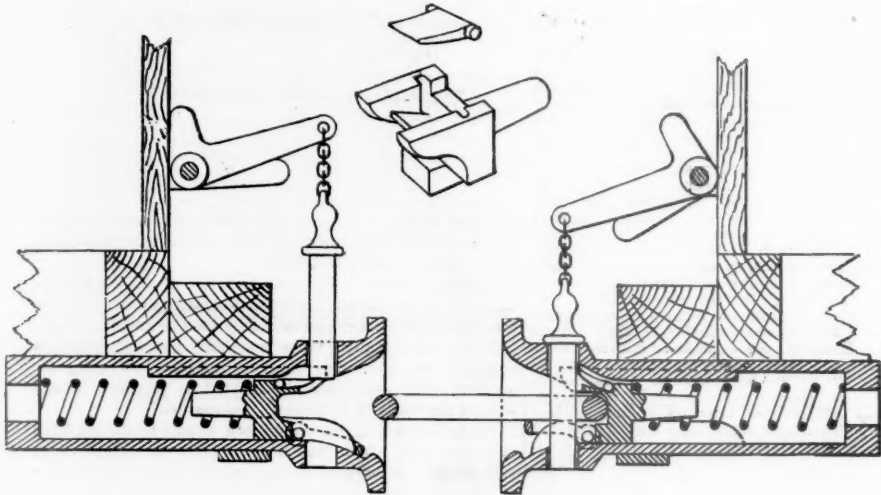
From the above statements, furnished by persons of experience in ship lifting, it is clear that cargo-laden vessels can be raised out of the water by hydraulic ship lifts with perfect safety, or drawn up on dry land by a marine railway with equal security. Each of these methods is now in daily use. The Chignecto Marine Transport Railway is a combination of both, the only difference being that the vessel is lifted out of the water to be carried over land a distance of 17 miles instead of to receive repairs. If it is practical to haul a ship 100 yards over land, why is it not also practical to transport the vessel as many miles? Engineers say that there are no difficulties in the way, and it does not seem reasonable that any should exist. Similar appliances to those now in use will serve to keep the vessel on an even keel and prevent injury to the bottom while in transport. But to set all doubts at rest, the company will insure all vessels cross



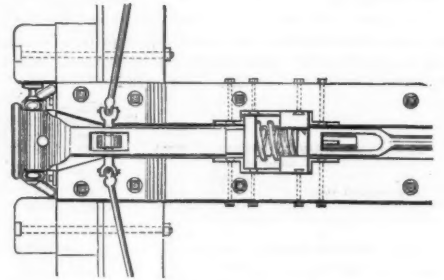
End Elevation.



Longitudinal Section

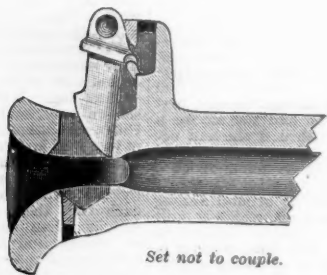


THE MCKEN CAR-COUPLER.

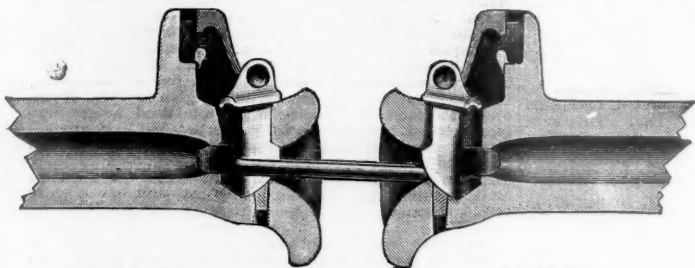


Inverted Plan.

THE MARKS CAR-COUPLER.



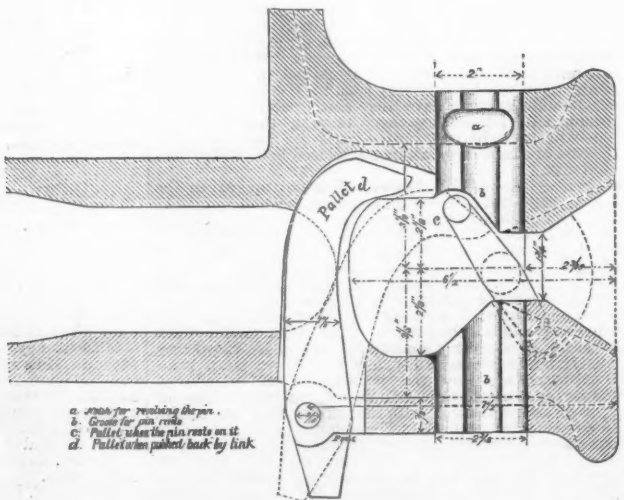
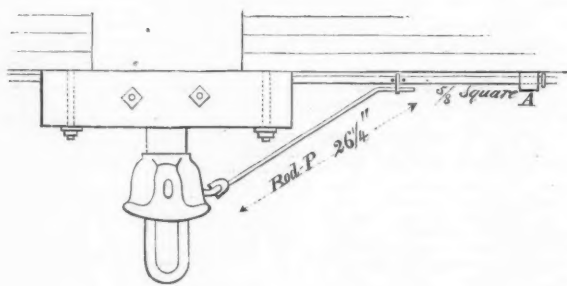
Set not to couple.



Coupled.

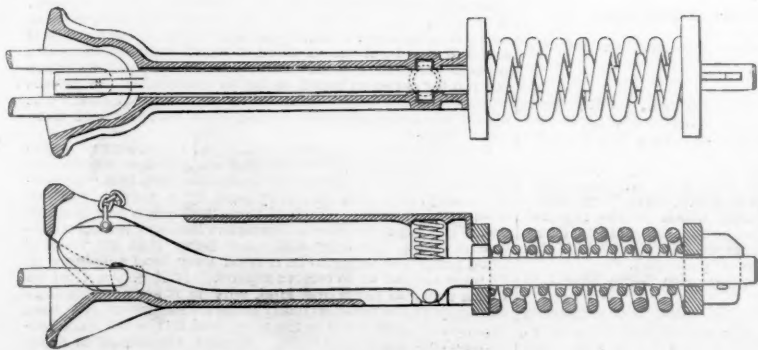
About to couple.

THE GIFFORD CAR-COUPLER.



a. Hook for retaining the pin.
b. Groove for pin rods.
c. Pallet when the pin rests on it.
d. Pallet when pushed back by link.

THE PERRY CAR-COUPLER.



THE ARCHER CAR-COUPLER.

ing the isthmus against damage.—*St. John (N. B.) Telegraph.*

This railroad, it will be remembered, is intended to carry vessels from Chignecto Bay, the upper arm of the Bay of Fundy, to Bay Verte, enabling vessels to pass from Northumberland Straits to and through the Bay of Fundy, avoiding the long and sometimes dangerous passage around Nova Scotia.

The Twelve Car Couplers Adopted at Buffalo.

The accompanying illustrations represent the 12 couplers adopted by the Executive Committee of the Master Car-Builders' Association after the trials at Buffalo.

The results of these trials and the manner in which they were conducted have already been fully described in the last two issues of the *Railroad Gazette*, and need not be further referred to here. A uniform series of views of all the couplers presented for trial have also been given in these pages.*

In describing briefly the coupler which met with the approval of the Committee, the classification adopted by that body is followed.

CLASS A—LOOSE-LINK, PIN SUPPORTERS.

The McKEEN safety coupler was patented July 8, 1884, No. 301,737 and No. 301,738; and Sept. 8, 1885, No. 325,847 and No. 325,848.

This coupling is provided with a sliding block inside the drawhead. This block limits the lift of the pin, and serves as an elastic stop to the link when inserted. It also, by means of a hinged flap, supports the pin when raised. When the link enters, it forces back the sliding block, and allows the pin to fall into the link. The pin is raised by means of a lever and chain operated from the sides or top of the car, and the link can be raised or lowered to suit the height of the other draw-bar, by means of a separate lever.

The PERRY car coupler has been in extensive use for some years, and its construction is very clearly shown on the accompanying illustrations. The principal feature of this coupler is the small distance apart of the upper and lower bearing surfaces for the pin. The pin is thus not liable to be bent or broken. As the mouth of the coupler is enlarged, both immediately in front of and behind the pin, the link can assume a large angle from the horizontal, and so allow for a difference in the height of the draw-bars in adjoining cars.

The next class of couplers has also a loose link, but a catch or dog is substituted for a pin.

The ARCHER coupler has a long hook, which falls and engages the link, its action being somewhat assisted by a spring. This coupler has been previously illustrated and described in these columns, but is now somewhat altered in proportions, though its essential principles remain unchanged. The draft strain does not come on the draw-head, but is transmitted by a long hook directly to the draft spring.

This coupler is used to a considerable extent on the Delaware & Hudson Canal Co.'s lines, and, we understand, gives great satisfaction.

As the draw-hook is to some extent independent of the draw-head, it can assume an angle to suit cars of different levels without throwing a severe downward strain on the extreme end of the car at the drawhead, tending to pull the latter down. This is a valuable feature, in view of the great damage caused to cars by the fact that the common link, when used to couple cars of different heights, often serves not only to transmit the draft strain, but throws part of the weight of the low car on the extreme end of the high car. The draft timbers are thus strained in a manner they were not calculated to bear, and the results are but too well known in car repair shops.

The GIFFORD car coupler has been largely used on the New York, Lake Erie & Western. Its leading feature is the use of a peculiarly shaped pin, which when struck by the link of another car is lifted, and dropping, engages the link. The pin has a sloping shoulder, which bearing against a similar incline inside the drawhead, prevents the pin working up while the car is running.

The pin can be lifted up, and hooked up out of the way when it is desired to set it not to couple. This can be done without detaching the pin from the drawhead, and indeed it is difficult to see how the pin can be lost.

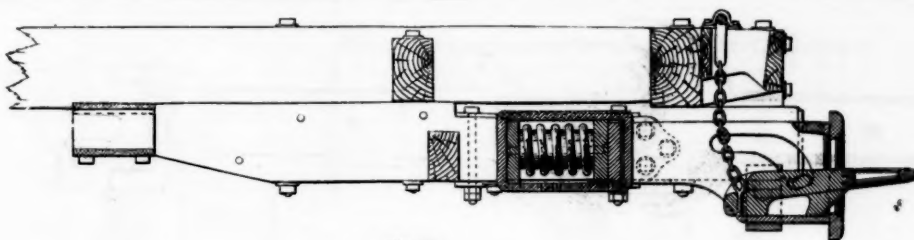
The MARKS coupler somewhat resembles the Archer, both in its leading feature, a long pivoted hooked bar, and in the advantages to be derived from it. The uncoupling arrangement is, however, totally different, the coupling bar or hook being raised by means of an eccentric on a cross shaft placed underneath the coupling bar.

CLASS B—FIXED-LINK.

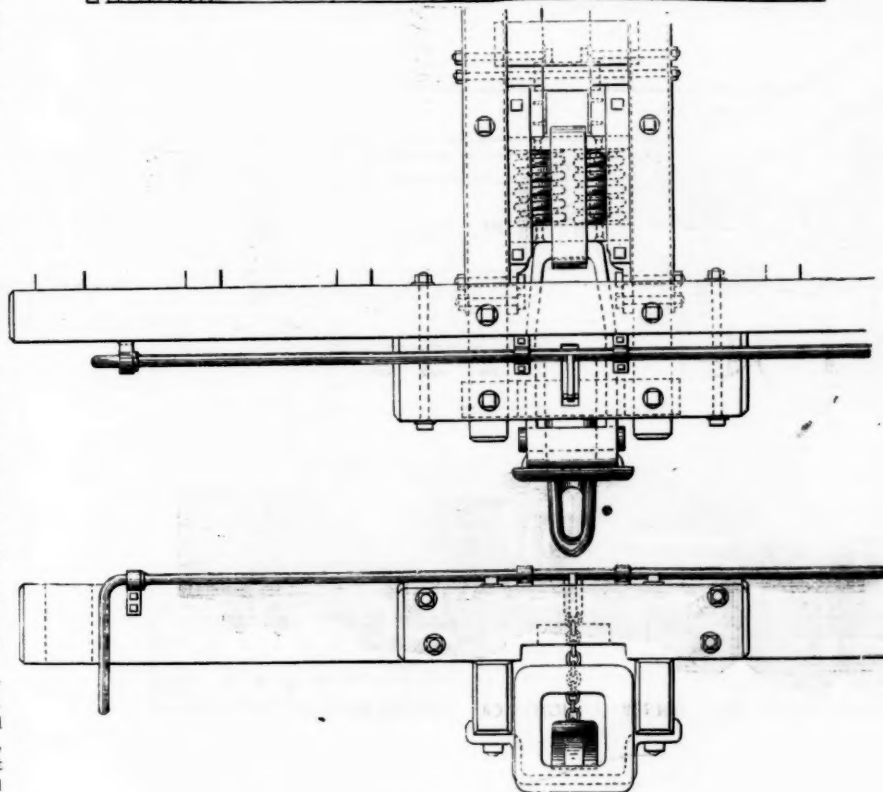
The well-known AMES coupler is the only chosen representative of this class. The link is balanced at the back end so that it will normally stand level, instead of drooping as most links do in both common and patent draw-bars. The link is provided on its under side with a hook, and is pivoted on a transverse horizontal gudgeon. This gudgeon is free to move in a peculiarly formed slot in the side of the draw-head.

When two Ames draw-heads strike one another, one of the hooks overrides the other, and as the cars rebound, the hook of the upper link engages in the lower link.

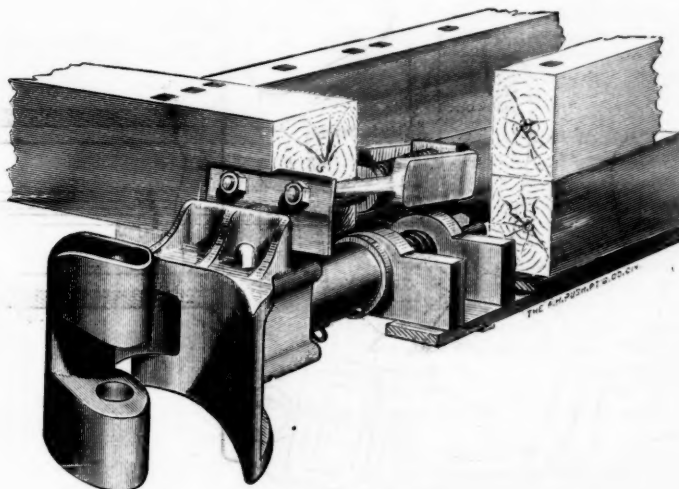
The link is made of drop-forged Siemens-Martin steel, and the gudgeon is forced into it after the link is placed inside the draw-head. Consequently when once in, the link cannot be withdrawn from the draw-head. The latter is made of malleable iron. We understand that the draw-heads tried at Buffalo were a departure from the standard pattern, being $\frac{1}{2}$ in. too wide, and 1 in. too deep in the mouth. This would facilitate coupling on a curve or with cars of different level, but would of course render the draw-head slightly weaker than the standard form with thicker lips. As tried, however,



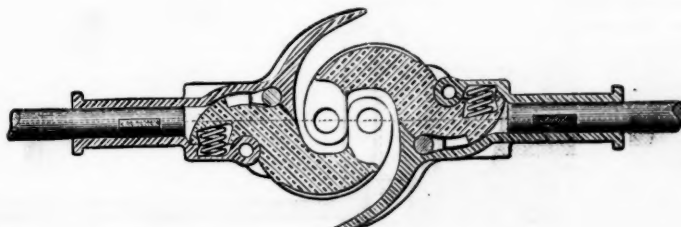
Scale 0 1 2 3 4 5 ft



THE AMES CAR COUPLER.

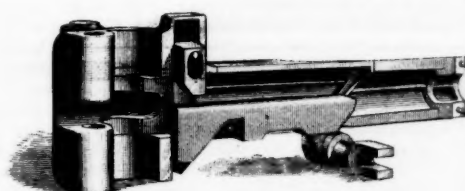


Perspective View.

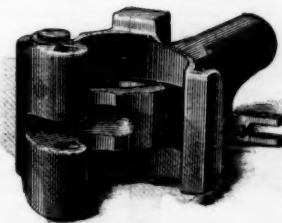


Plan.

THE DOWLING CAR COUPLER.

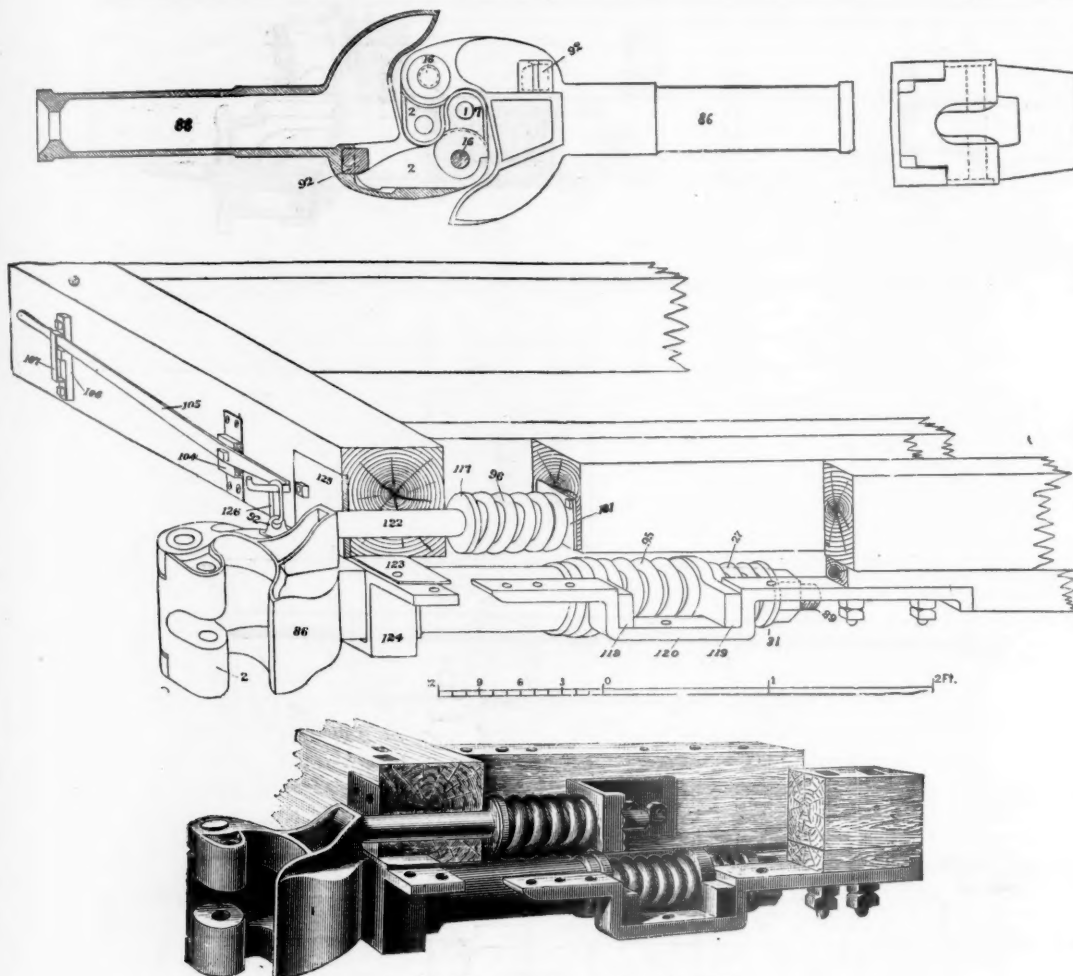


Perspective Section.

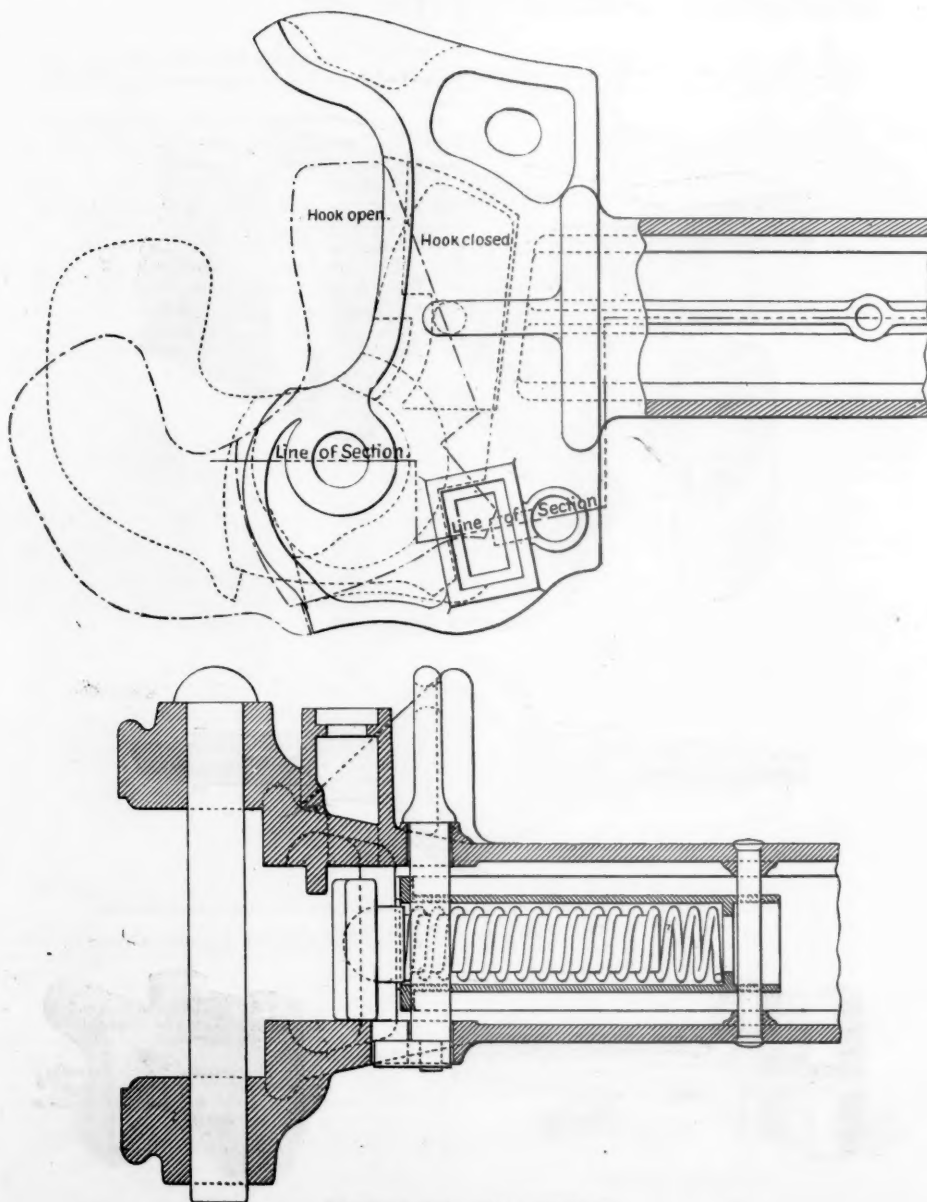


THE THURMOND CAR COUPLER.

* See *Railroad Gazette* Sept. 25, 1885.



THE JANNEY FREIGHT CAR COUPLER.



THE HIEN CAR COUPLER.

at Buffalo, the draw-heads seemed sufficiently strong, no breakage coming under our observation.

It is perhaps hardly necessary to mention that this coupling is largely used on the Boston & Albany, the New York Central and the Lake Shore & Michigan Southern roads, and appears to be considered perfectly satisfactory to the officers of those roads.

CLASS C—VERTICAL PLANE COUPLERS, THE LOCK BEING EFFECTED BY GRAVITY.

The DOWLING Automatic Safety Car Coupler, was patented Nov. 7, 1871, No. 120,726; and Oct. 7, 1884, No. 306,326. The hook is provided with an arc-shaped stem which loosely fits within corresponding arc-shaped sockets formed in the draw-head. The movement of the hook to and from the draw-head (moving inward to couple and outward to uncouple) are in the arc of a circle, and are limited by slots and the coupling pin or key, which also operates as a locking device when the draw-bars are coupled.

The outward movement to uncouple is effected by a spring within the drawhead, so that by raising the pin or key the uncoupling position is assumed by the hook automatically. In coupling, guard arms guide the hooks and push them inward against the springs, the locking keys dropping into position by gravity.

When the cars are run together, and are set not to couple, the key must be raised sufficiently to free its wing from the slot, and then turned laterally, so that the wing rests upon the top of the drawbar. This pin can be operated from the top or side of the car.

The tension or pull of the hook is exerted in the stock of the drawhead, along a curved surface, which permits the lock to be drawn out without the intervention of a pin for an axis of rotation.

THE THURMOND automatic car coupler is shown in the accompanying perspective views.

The knuckle of this coupler is locked by gravity, a suitably shaped plug sliding on inclined planes in the axis of the drawbar. When this plug is moved back by means of the rod and hand-gear shown, it is in turn locked in position by means of a gravity plug, which falls vertically in front of the forward end of the sliding plug. In the act of coupling, this plug is lifted by the knuckle, and the plug sliding forward locks the knuckle. By a simple and ingenious arrangement the knuckle is efficiently locked if the coupling is effected on a curve, but as cars come on a tangent, the knuckles move further, and allow the locking piece a slightly greater motion, giving greater bearing surface on the knuckle.

This coupler will couple with one or with both knuckles open. Though very recently introduced this coupler has attracted a great deal of favorable notice, and much interest will be taken in its trials. We understand that the inventor is developing an improvement which will further simplify the locking device.

The HIEN coupler, as shown on our illustration, has the knuckle thrown open by a spring, and locked by gravity. Some misunderstanding appears to exist on this point, the Committee having, for some reason unknown to us, classed the coupler among those having the lock operated by spring. The lock, as shown in our illustration, consists of a rectangular section plug, falling by gravity, and raised to uncouple by means of a vertical spindle, shaped like a common door key.

It will be seen that this coupler differs from the Thurmond and Janney in having the knuckles thrown open automatically by a spring, instead of having to be opened by hand. This is, of course, a great advantage, but it is contended that in attempting to couple at any speed the compressed spring throws the knuckle back before the gravity plug can drop, and consequently the cars remain uncoupled. Practical experience will no doubt show whether this objection is founded on fact or not.

It will be noticed that in buffing the knuckle has a large bearing on a plane surface, and should consequently wear well.

This coupler is in use on 160 cars on the New Haven & Northampton, and is also being tried on the Chicago, Burlington & Quincy, Chicago, Milwaukee & St. Paul, Chesapeake & Ohio and Chicago, Rock Island & Pacific. About 300 cars in all are now running equipped with this coupling.

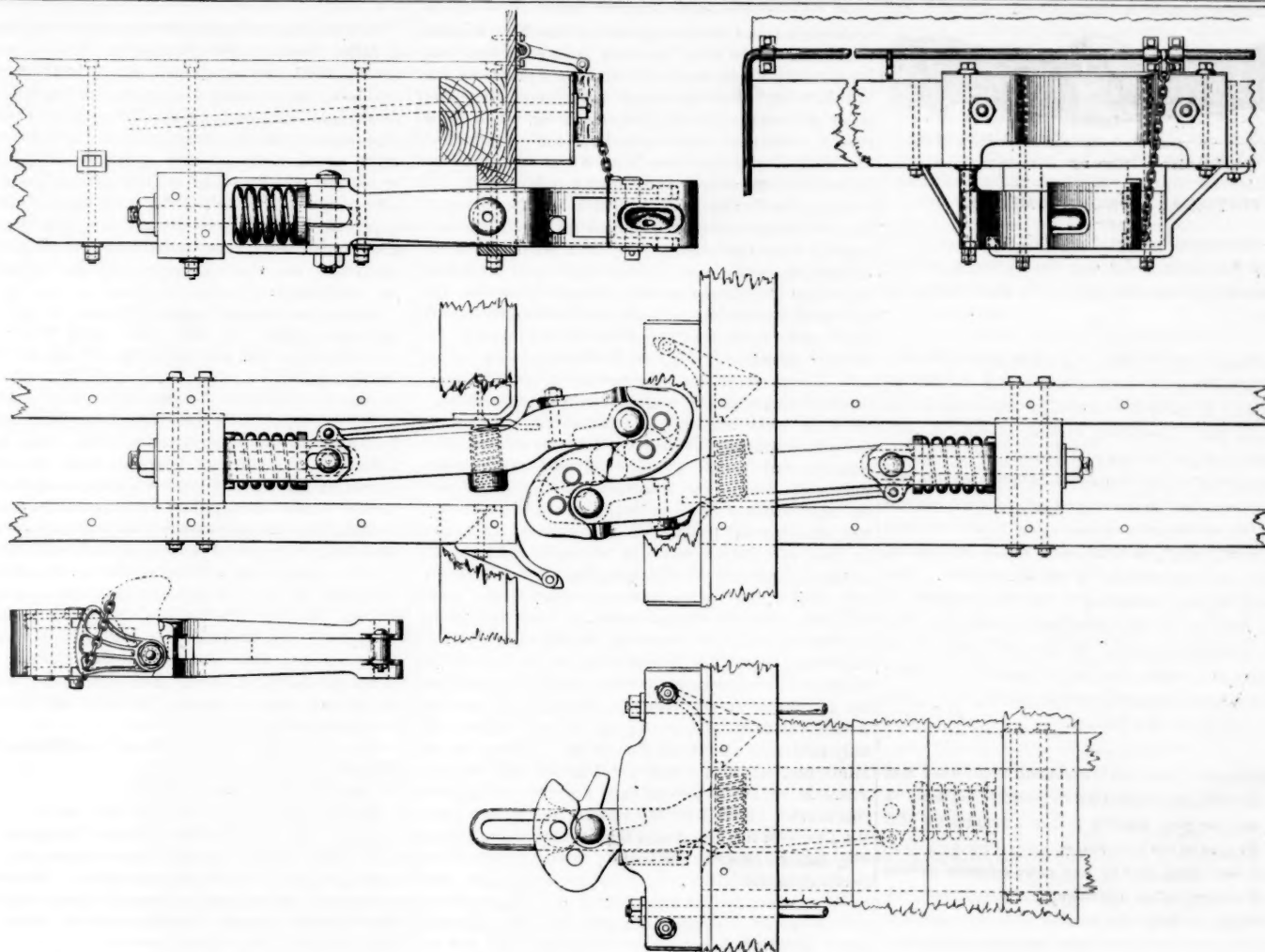
The JANNEY coupler is so well known as to hardly need description. It may be well, however, to place a few essential features of its construction on record. The knuckle is locked by a vertical plug which is free to drop by gravity, but its movement is accelerated by a light spiral spring placed beneath it. The use of a spring renders the fall of the plug instantaneous, and consequently a coupling can be effected even when the cars are run together at a very high speed. In several quarters objections have been raised to a locking gear actuated by a spring, but these objections appear unwarranted when it is borne in mind that a spiral spring, unless vertasked, as in draw and bolster springs, is one of the most durable parts about a car. The release springs of the Westinghouse brake might be cited as an example of this.

It will be observed that the inner arm of the Janney knuckle is longer than the outer, thus reducing the strain on the locking pin. The knuckles overlap one another considerably, and are curved so that their bearing is considerable, and it seems impossible for the cars to become uncoupled while running.

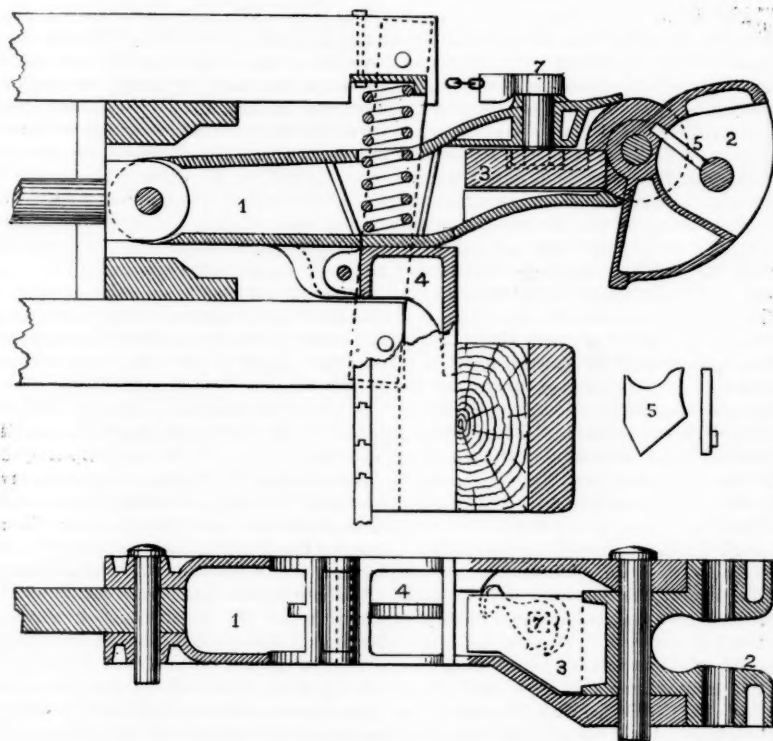
The Janney as a freight coupler is being tried on a large experimental scale on several Western roads and on the Pennsylvania.

CLASS C—DRAWHEAD GUIDED AS IN MILLER.

It will be noticed that the following couplers differ from all those previously described, in the fact that the whole drawhead has a transverse motion, which is governed by a spring acting at right angles to the line of draft.



THE TITUS & BOSSINGER CAR COUPLER.



THE COWELL FREIGHT CAR COUPLER.

The COWELL freight coupler is shown in its most recent form in the accompanying illustrations. It will be seen that the pivoted head is now locked by a gravity piece, which slides down an inclined plane. As formerly made, the head was locked by a horizontal plunger actuated by a spiral spring, but our detailed views show the coupler as exhibited at Buffalo. It can be made either with or without dead blocks. In the ordinary sense of the term it has no buffer; that is to say, when the spring is driven home in buffing, the drawhead does not come into contact with a special central spring or block, specially prepared to receive it, and connected with the sills rather than the draw timbers. The drawhead of the *other* car, however, comes into contact with a species of angle plate, placed as shown in our illustration. The greater part of the coupler is made of malleable cast iron, some small parts being made of steel.

The following advantages are claimed for this coupler:

1st. The Cowell coupler, as a hook or vertical plane, couples

les under all circumstances, in all positions, unless set not to couple—that whether both heads are open, both closed or one open and one closed, it always couples.

2d. In its natural closed position it presents to an opposing link coupler a *regular* link coupler (i. e., a regular link buffer and link pocket), and that it couples *automatically* to a common link coupler. If a link coupler happens to strike the Cowell head when open, the contact will close the Cowell head.

3d. Under no circumstances whatever is it necessary to go between cars equipped with the Cowell, and never, coupling a Cowell to a link coupler.

4th. In its present form the Cowell has a buffer (spring buffer, not deadwood) which utilizes the draft spring of the coupler as a buffer spring also.

5th. A gravity lock or catch is used, having no springs about it.

6th. The Cowell coupler can be set with no slack or with all the slack desired.

7th. The Cowell coupler fits present timbers of cars. It can be inserted in place of old couplers, and old removed in two hours.

8th. It is the cheapest of all vertical plane couplers.

9th. The following two points of superiority are claimed over any other vertical plane coupler:

A. It couples in all positions. No matter how boys playing with cars in yard may leave couplers, they couple when brought together.

B. It couples *automatically* with link couplers.

The TITUS & BOSSINGER coupler was patented Dec. 12, 1876, No. 185,269; Nov. 11, 1884, No. 308,014; and May 12, 1884, No. 317,889.

A species of hook swinging in a horizontal plane is pivoted on the end of drawhead. It is locked in position when coupled by a radial cam actuated by gravity. This cam is placed outside the drawhead, and engages with a knuckle on the back of the hook. The drawhead is pivoted near the draft spring, and a spiral spring tends always to force the drawhead into an engaging position. The illustrations very clearly explain the construction of this coupling, and show it made of malleable cast iron. It can also be made partly of wrought iron and partly of cast iron, and was so shown at Buffalo.

This coupling has been in use for some months on 36 cars on the Chesapeake & Ohio Railway, and we understand that the officers of that road are very well satisfied with its performance. The head is arranged for the use of a pin and link when coupling with the old style of drawhead.

A Bad Case of Color-Blindness.

Mr. Julius King, who is the examiner for color-blindness for the Lake Shore & Michigan Southern Railroad, has discovered a remarkable case. The patient is an employé of the railroad company. He is a man about 40 years old, and is a fireman. Mr. King made three tests in his case. First, colored glass globes were placed over a gas jet, and the man, at a distance of 20 ft. away, asked to tell the colors. He named the red globe correctly when it was first used, but on second trial declared it to be green. Then railway signal flags of different colors were waved before him. He called the red flag green, the green flag red, and when two flags, both red, but of different shades, were waved the fireman insisted that they were green. Red and green flags held up together he declared to be green. The next test was made with a small rack in which hung zephyr worsted of different colors. The standard color of green was pointed out to the man and he was asked to select the worsted in the rack of the same color. He immediately picked out bright red, old gold and light brown bunches. The unfortunate fireman had to be discharged. Mr. King said that he had examined a very large number of men for color-blindness and that about 4 men in every 100 are defective in their eyesight in this respect. But very few people are as color-blind as the fireman, he said. He said that women were seldom found color-blind, as they constantly trained their eyes in selecting colors in ribbons and dry goods, and in discriminating between delicate shades and tints. In answer to a question Mr. King explained: "The theory of the cause of color-blindness is that parts of the retina of the eye respond each to different colors. When any of these parts are deficient, absent, or undeveloped, the person cannot see the color that it belongs to, leaving some other responsive part to act."—Cleveland (O.) Leader.



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

PASSENGER AND FREIGHT CAR COUPLERS.

One of the first essentials for solving any problem is a correct understanding of what the problem really is, and wherein lies its difficulty. The freight coupler question, as every railroad man has reason to know, is still an unsolved problem; in fact, although the obstacles to a satisfactory solution have shifted their ground a little, it may be questioned if they are really any less serious than they were five years or ten years ago; and it seems probable that a mistaken idea as to what the causes which are impeding a solution really are is standing, and may stand still more, in the way of real progress.

A comparison of the history of the introduction of passenger and freight car couplers is alone almost sufficient to show what the real nature of the difficulty has been and is; that is, the necessity of agreement and concerted action, not only in the end, but in the beginning; and not the exceptional mechanical difficulties of the problem, nor the exceptional stupidity of inventors, nor the exceptional indifference or skepticism of railroad men. For this reason, as well as because the general facts of that history are in themselves interesting, and in the case of freight couplers important for future guidance, it will be well to rehearse them.

The introduction of passenger couplers was very remarkably free from the painful delay which has been so conspicuous in the case of the freight couplers. The Miller "coupler, buffer and platform" was first patented in 1863, but it was not till 1865 and the middle of 1866 that the patents which fully protected the device as it now exists had been taken out. Almost immediately it met with favor. The Chicago, Burlington & Quincy had it in general use in 1867; the Philadelphia, Wilmington & Baltimore, in 1868; other roads, probably, still earlier than these; since these are mentioned, not as the first to adopt it, but as the first for which we are able to give definite dates. In 1869 and again in 1870 (the first two reports of the Board) the Massachusetts Railroad Commission reported that the device had already "been very extensively adopted in the Western and Middle states, though hardly at all in New England;" and expressed regret that, being a patented device, they could see no way for making its use compulsory. When the still-memorable Revere accident occurred, Aug. 26, 1871, it was made the subject of

wide-spread and severe reproach to the New England roads that "even then"—hardly more than four years since railroad men had even heard in a practical way of this or any other passenger safety coupler!—they were still using the old link coupling. The Miller record, in fact, is rather remarkable among patents of any kind, for the quickness with which it secured and maintained immediate and general public favor. It was practically the first applicant for favor, for although others had been patented in small numbers, none of them had ever even reached what would now be considered the experimental stage; and it held the field until it appeared upon the point of coming into universal use without any practical competition. Its only early rival was the Blackstone platform and coupler invented by Mr. T. B. Blackstone, then and now President of the Chicago & Alton Company, and introduced indeed quite extensively on the latter road in 1869-70, and continued in use to the present time, unless it has been very recently abandoned; but it was not advertised nor pushed, nor was it, to our knowledge, ever introduced on any other road. It was not until 1877 that the determined refusal of the Pennsylvania road to use the Miller and its watchful lookout for some substitute resulted in bringing forward the Janney coupler, then in the inchoate model stage, which the Pennsylvania took up at once, and not only tested, but furnished all the necessary facilities for perfecting it experimentally. Visitors to the Centennial Exhibition will well remember the wooden wedges to take up the slack of the common link-and-pin coupler which was then, and for a year or two longer, the only substitute on all the Pennsylvania lines for the Miller platform and coupler, which had been for some years in all but universal use elsewhere for trunk line service. Still later the Cowell has appeared as a rival to both the Miller and the Janney; but although very many deem one or both of these newer devices better than the Miller, yet there would probably have been no one so foolish as to advise postponing all action to await the appearance of these devices, even could the future have been foreseen; and but for the exceptional circumstances which favored the development of the Janney, it may be doubted if it would have been practicable to introduce successfully a rival to the Miller for many years to come. If there be a lesson which we can learn from the history of passenger couplers, it is that it is better *not* to wait for absolute perfection if the desired ends are met tolerably well, but rather to leave it to the future to produce perfection if it can.

How has it been with freight couplers? Instead of invention and adoption following each other within a few years, some of the couplers which are still prominent have, in their essential features, been pushed for a dozen or twenty years, with little success as yet to the most favored. The patents taken out are numbered by thousands instead of dozens, and those which have or have had some respectable following among practical railroad men number at least twenty. No railroad company has watched for the coming of even the most promising with eagerness, or turned the resources of its shops and staff to nursing the bantlings through the many ailments which infant couplers, like other infant organisms, are heir to. On the contrary, good and bad alike have been met for the most part with the cold eye of suspicion and indifference, and that inventor has been fortunate who has not found that the railroad company which permitted him to put couplers on cars at all, in addition to requiring him to bear all expenses, did not, like the Pickwick Club, "cordially recognize the principle that he should pay his own traveling expenses." We do not mean that individuals have been especially blameworthy on this account. It resulted for the most part from causes beyond the individual control of either the inventors or the officials, but it must be admitted that the coupler-man's lines have not been cast in pleasant places, and are not yet, even when he had a promising device; and this adds something to the many other reasons why the strongest moral obligation rests upon every railroad officer who has to do with the solution of the problem to see that each and every one of them is given a fair field and no favor, and has exact and equal justice meted out to him.

The first indication that the freight coupler question was looked on as a living and real one by master car-builders, as a body, appears in the report of their Association for 1875. The use of the Miller coupler had then become general on all important lines except the Pennsylvania. Singularly enough, this first mention is also the most hopeful one; to the effect that "we believe that we see strong indications that the activity of inventors will in another year, in all probability, produce something to remedy these defects" of the present freight coupler.

Such a sanguine report indicates that the subject was a little fresh to the committee. In the year following, 1876, the Janney, which was just then coming into being as a passenger coupler, was hopefully mentioned for freight use, and Mr. Kirby reported favorable experience with the Ames, dating from September, 1875; which latter appears to be the earliest date at which any coupler which is still a living issue was put into use. The committee on draw-gear reported less hopefully, but hardly more correctly, that "in view of the number being constructed and applied, and of the progress being made," they would like to be excused for the present.

Nothing more than casual mention of the subject appears thereafter for five years, until 1881. In the mean time, in 1880, the authorities of the Province of Ontario had had a public hearing on the subject, and examined a number of couplers, eliciting much interesting information on the general subject of safety to trainmen, although no definite action was advised. This, or the inherent importance of the subject, stirred up the state of Connecticut to take the lead of all the states in a public hearing on Nov. 29, 1881, resulting in a recommendation that all new cars thereafter built be required to be equipped with an automatic coupler, which recommendation has since been embodied in law. A few months before a committee of the Master Car-Builders' Association reported "progress" in a few lines only, asking to be continued.

A year later, Oct. 12, 1884, the first definite action of the Master Car-Builders' Association was taken, in a committee report naming the following couplers as of special merit:

Class A.—AMES, ARCHER, *Excelsior*, PERRY, *Pugh & Browning*.

Class B.—Davis, HIEN, JANNEY.

With the following as worthy of mention:

Anchor, Brooks, COWELL, Dennis, Hargrave, Hartwell, Recht, Sadler, Safford (not a coupler, but an improved shape of the common draw-bar), Wilson.

Those in italics, being those which have never obtained other official indorsement by name, have since dropped (for the most part) out of sight; as have also a long list of 22 couplers reported as "not practicable"—a verdict which time appears to have justified in every case.

The next action was at the Saratoga convention, June 10, 1884, where the resolution in respect to "vertical plane" couplers (those moving laterally in the act of coupling), being the most perfect mechanically, was passed, after a somewhat checkered and curious debate; the following list was recommended; not as before, in a committee report, but in a resolution prepared on the spur of the moment by one of the members, and hence, although passed by *viva voce* vote in convention, not entitled to be regarded as, in as full a sense, an expression of the deliberate judgment of the association as a body.

Those not wishing to experiment with couplers of the most mechanically perfect class, as the JANNEY and COWELL, were recommended to experiment with the AMES, ARCHER, *Conway ball*, GIFFORD, Mitchell, UNITED STATES, Wilson & Walker.

A few weeks thereafter, Sept. 25, 1884, the hearing before the Massachusetts Board of Commissioners was held, in pursuance of the law requiring the Commissioners to designate certain "automatic or other safety couplers," which should alone be placed on new cars in Massachusetts after March 1 last. The commission selected the COWELL and JANNEY ("vertical-plane" type), AMES, *Hilliard* and UNITED STATES.

Nothing further was done until June of this year, when, at the Old Point Comfort convention, an attempt was made to hold a careful discussion of the whole subject. All railroad commissioners and managers were invited, but only two or three of them came, and nothing further was done than to refer the subject in an indefinite way to the Executive Committee of the Master Car-Builders Association; who followed the general feeling that the subject could no longer be trifled with, by inaugurating the test which has just taken place at Buffalo, in which over 80 cars equipped with 42 different couplers took part, several which had been entered failing to put in an appearance.

In saying that nothing was done at the Old Point Comfort convention, perhaps we should except resolution passed deprecating the further action of the state commissioners, on the expressed ground that the action so far taken "was already increasing the danger to trainmen," and would do so still more if continued. This resolution, although doubtless not so intended, had the appearance of encouraging an indefinite postponement of the subject, and although the danger from state action at which it is aimed is undoubtedly a real one, yet as such state action as has been had already has caused or been followed by the only serious

effort the railroads have made in the matter, it is hardly to be deprecated, however much farther state action may be deprecated. A few states have legislated on the subject. In Massachusetts and Connecticut the equipping of new cars with some safety coupler is already obligatory; in New York and Michigan it will be after July 1, 1886; the Commissioner in the latter state being instructed to make a selection by May 1, 1886, while in New York no selection is to be made.

At this last Buffalo test the twelve couplers selected, as above noted, are the following, those in *italics* being, as heretofore, those which are now recommended for the first time; and those in small caps, those which have been heretofore recommended:

Of the "vertical plane" type.	Of the link type.
COWELL.	AMES.
<i>Douling.</i>	ARCHER.
HEN.	GIFFORD.
JANNEY.	Marks.
Thurmond.	McKeen.
Titus & Bossinger.	PERRY.

It will thus be seen that there have been four semi-official specifications of meritorious couplers, one by the Massachusetts Commission; two by committees of the Master Car-Builders' Association, and one by a resolution offered before and passed by that Association. The couplers which have been recommended on all four of these occasions have been the AMES and JANNEY.

The couplers which have been recommended in all but one were the COWELL (omitted in first one only) and ARCHER (omitted by Massachusetts Commission only).

Those mentioned twice only, in the first and last action of the Master Car-Builders' Association, but omitted on the two intermediate occasions, were the HEN and PERRY.

The GIFFORD was named in the Saratoga resolution and at Buffalo only, while the UNITED STATES was named in the Saratoga resolution and specified at Boston, but omitted on the first and last occasion.

All the remaining twelve couplers have been mentioned on one occasion only. Those mentioned only in the first Master Car-Builders' list, but dropped since, have been the *Davis, Pugh & Browning, Ecclesior*.

Those mentioned in the Saratoga resolution and not before or since have been the *Conway ball, Mitchell and Wilson & Walker*.

The Hilliard was chosen by the Massachusetts Commission only, and the following have received at Buffalo their first official recognition: *Douling, Thurmond, Titus & Bossinger, Marks, McKeen*.

Too much significance should not be attached to this showing, especially in the case of those which are omitted only on the earlier occasions, when many of them were not in existence. This is the case, in fact, with four out of the five couplers which were named for the first time at Buffalo. On the other hand, those which have been named on one of the earlier occasions only, and have since been dropped, have a certain legitimate presumption against them, although even this may be an unfair one, as the disappearance may have been due to lack of money or courage in pushing the device, and not to lack of mechanical merit.

How far the Buffalo tests have advanced us toward a final decision it is as yet too early to surmise. Many will wonder why certain couplers were both omitted and excluded from the Buffalo list, although few might agree in the couplers which caused their wonderment. This is to be expected; but of one thing we may be certain, that the approved list must be brought down to one or two or three at most before the question can cease to be a living one, and that even then the couplers which stood nearest to the favored ones and were *all but* admitted to the heaven of public favor will be very apt to play the part of Banquo's ghost, unless the machinery of selection involves some mode for laying all the more promising competitors quietly away in their graves, with the approval and consent of their owners. Otherwise, each will be very apt to have a following, and continue the fight.

The New Issue of Stock of the Chicago, Milwaukee & St. Paul.

The Chicago, Milwaukee & St. Paul directors last Saturday declared a dividend of 2½ per cent. on the common and 3½ on the preferred stock of the company, and at the same time voted to offer both classes of stockholders the right to subscribe at par for a new issue of \$5,000,000 preferred stock before Dec. 15. The proceeds, it is said, will retire the floating debt "and provide a handsome surplus in addition." The preferred stock before this decision was announced was selling for 113; the holders of all stocks will have the right to subscribe for about 10½ per cent. of their holdings, which, at 113, would make

the privilege worth about \$1.18 per share. But actually, the shares fell in a few minutes, the common 1½ and the preferred 2, to 78½ and 111, with a recovery to 112 for the latter in a short time. As it had been considered doubtful whether as much as 2½ per cent. would be paid on the common stock, and as the privilege after the fall in price was worth more than 1 per cent., it is evident that the new issue of stock was looked upon with suspicion or disfavor. It was. New capital has been raised so often just when this company has declared dividends that without doubt some suspect that the dividends are paid out of capital; but in this case the raising of so much capital was thought to indicate that the company had determined to construct an extension from Ottumwa, Iowa, to Kansas City, which has been authorized, and investors have such a wholesome fear of paralleling railroads that the bare suggestion of it frightens them.

But without building any new road, the Chicago, Milwaukee & St. Paul Company is likely to need a considerable amount of additional capital yearly, like every other company with an immense mileage of new and cheap railroad in a growing country. In reviewing its report last spring we spoke of this necessity and the difficulty of meeting it under existing circumstances. The vast additions to the property of the company have been paid for chiefly with bonds to such an extent that it now has a funded debt of \$100,254,000 against a capital stock of \$47,545,000. The disproportionately large amount of bonds makes it difficult and dangerous to add to them; and unless new bonds were issued there was no way to raise the needed capital except by suspending dividends and paying for the improvements out of earnings, or by raising capital by new issues of stock. The latter, if dividends are really earned, is the proper way; but it is a pity for such a company to issue its preferred stock. This would not have been necessary a few years ago, for that stock then was much above par, and the company would have been in a much stronger position now if part of the capital then raised by selling bonds had been got by stock subscriptions, and if the shareholders in 1882 had been made to pay par instead of 50 for the common stock then issued. However brilliant the prospects of a railroad company, it is dangerous to have the payment of interest obligatory on more than two-thirds of its capital.

The building of an extension to Kansas City by this company does not seem wise, but as much so as the building of a line to St. Paul by the Chicago, Burlington & Quincy—more so, in fact, for the Burlington will get a haul of 101 miles over its present road on Chicago-St. Paul traffic, while the Milwaukee & St. Paul will get a haul of 324 miles over its present line on Chicago-Kansas City traffic. Something like 200 miles of new road will bring the Milwaukee & St. Paul to Kansas City; 360 are being built to connect St. Paul with the Burlington. On neither line does the local traffic offer inducements for the construction of an additional railroad. The Burlington, probably, will find it convenient to have a line to the lumber region of Wisconsin and Minnesota, that it may distribute it on its great system of lines in Iowa, Missouri and Nebraska, and the Milwaukee & St. Paul, already established in the lumber regions, would like an outlet of its own to Kansas City. A little interchanging with each other, it might seem, would give them what they need without the necessity of building any new railroad; but the great Western railroads seem to think that each must have a line to every place where any competitor has a line; the result of which is quite satisfactory to rail-makers and contractors, however it may be to owners of railroad securities and the public that is expected to pay interest on the cost of two roads where one could do all the work more cheaply.

The addition of \$5,000,000 to the capital stock of the Chicago, Milwaukee & St. Paul will still leave it with a very light capital—only \$31,800 per mile. To pay the 7 per cent. to which this preferred stock is entitled, before the common stock receives anything, will require \$73 more net earnings per mile than formerly.

The Rejected Wheel Tread.

A circular from the Secretary of the Master Car-Builders' Association, published in another column, announces the defeat of the standard wheel tread proposed by the committee on that subject at the last convention at Old Point Comfort. Out of 379 votes cast, 233 only, or 61½ per cent., were cast in the affirmative, to 146 negative, and the standard was consequently lost.

On the same ballot a vote was taken on the proposition to adopt as standard a limit of variation of ¼ in.

each way from the standard distance in the clear between inside of flanges already adopted, 4 ft. 5½ in. This proposition was carried by a large majority, 368 to 14, in a total of 382.

As a full ballot of the Association (if it could be obtained) would be in the neighborhood of 650 votes, neither vote is a full one, but it is about as full as is usual, previous ballots having ranged for the most part between 300 and 400. A comparison of the ballots emphasizes the fact, which was clear enough at the convention, and has been made evident by several communications to our journal since, that considerable opposition exists to the proposed new section; or, to speak more correctly, perhaps, considerable doubt of its wisdom.

All, or nearly all, the opposition comes, it may reasonably be surmised, from that part of the tread labeled "This part of the tread is cylindrical," and from the sharply beveled outer portion adjacent thereto. That this form was liable to have a seriously injurious effect in passing over frogs, was claimed in these columns quite recently, by a prominent member of the Association; and there can be no doubt that the form is on the whole less favorable for that particular service than the common form; although as it wears it will become better, whereas the common form of tread becomes rather the worse.

A more serious objection to the tread, however, was probably that, in making all the bearing portion perfectly cylindrical, a radical departure was made from present practice, the precise effect of which no one knew or could foresee exactly, and which might prove decidedly injurious; while it was not claimed by any one that any very marked advantage would be gained over giving the proposed cylindrical portion a very slight coning. "Why, then," many have no doubt reasoned, "should we take the chances?"

For this position, not as respects the fact of danger, but as respects the possibility, not a little can be said. Coning subserves two possible uses: (1) On curves it helps to reduce curve resistance, by giving the truck a tendency to roll in a curve. This, it is now generally admitted and may be said to be proved, is an advantage more imaginary than real; but (2) on a straight line it tends or should tend to make the wheels roll away from the rail whenever they crowd up toward it; and this, in so far as it exists, is a very important advantage, which ought to be fully subserved even by a very slight coning; in fact, better with a slight than a considerable cone. Experiments may now be said to have demonstrated that coning always does have a slight effect to make a truck roll in a curve, although it is only slight. As then it is an undoubted fact that the irregularities of the best track cause the flanges to impinge against the rails, on one side or the other, at intervals, may it not be that a very slight coning supplies just the force that is needed to reduce this disadvantage to the minimum? No one can positively assert (or deny) this, but the *prima facie* case in favor of it is so strong that some positive disproof, or some strong counterbalancing consideration, may reasonably be insisted upon before adopting an absolutely cylindrical tread as a standard, especially when the undoubted disadvantage in passing over frogs is also considered; and none such has been.

The section, however, can easily be modified so as to remove these objections. We suspect that if the whole of the section just voted down (shown by an engraving in another column) be left precisely as it is, except that the point at the angle in the tread be raised ⅛ in., giving the cylindrical 2 in. of the tread that much coning, and reducing the sharp bevel of the outer tread from ⅛ in. to ¼ in., all opposition to the tread will disappear, and yet no important advantage which the committee had in mind will have been sacrificed. It will then be relieved from even the suspicion of being a hazardous departure from common practice which no one can assert of his own knowledge may not do harm.

A report was circulated last week that negotiations were going on between the Pennsylvania and the Baltimore & Ohio to make the former the New York outlet of the latter, which has now nearly completed its line to Philadelphia. Of course, it does not matter to the Baltimore & Ohio what line its New York traffic passes over, but the objection to the Pennsylvania is that it is a competitor, and in any future competitive contest is not likely to give the Baltimore & Ohio traffic equal chances with its own. Indeed, it was this that occasioned the building of the Baltimore & Ohio line to Philadelphia. To be on even terms with a competitor, a line needs independent power to make rates and run trains. If the Baltimore & Ohio last week, for instance, had been charged the mod-

erate sum of 6 cents per 100 lbs. for hauling its through freight from the West from Philadelphia to New York, the rate from Chicago being 10 cents, it would be at a disadvantage in competing for Chicago traffic, getting but 4 cents per 100 lbs. for a haul of more than 900 miles, while its competitor, the Pennsylvania, would be receiving more than that for 90 miles haul and the terminal on the Baltimore & Ohio's traffic. In passenger traffic, the Baltimore & Ohio needs trains with its through cars starting at times which will suit it and may not suit its competitor. All these things might be provided for by a contract, perhaps; but it seems very hard to do so, and usually when a company uses its competitor's line for an important traffic it becomes dissatisfied and finally builds a road of its own, as the Milwaukee & St. Paul did from Milwaukee to Chicago, alongside the Northwestern, as the Wisconsin Central is doing now over substantially the same route, and as the Chicago, Burlington & Quincy did during the war between Chicago and Aurora.

In the case of the Baltimore & Ohio, it does not need to build a line from Philadelphia to New York, but to take its choice between that of the Pennsylvania and that of the Reading. The latter is not a competitor for the through western traffic, as the Pennsylvania is, and it may therefore be depended upon to desire the development of the traffic of any connection it may have west of Philadelphia. If the South Pennsylvania had been completed, then it might have had reason to prefer that to the Baltimore & Ohio for western business, but with the Baltimore & Ohio alone to depend upon, it should be safer for the latter to depend upon it.

It is true that the Pennsylvania found it advisable to pay a high rent to secure its line from Philadelphia to New York, but the United New Jersey then had a monopoly of the business which it had been found impossible to break, and it was arbitrary with its competitors to an extent which would have been impossible if it had had a competitor then, as the Reading has now. Besides, the way is now open for any one who can command the money to build another railroad across New Jersey, which it was impossible to do then.

At last there is evidence in the trunk-line shipments from New York that business is better than last year, these shipments for the first three weeks of September having been nearly 20 per cent. greater this year.

A meeting of the trunk-line presidents is to be held just after we go to press, with fair prospects of making progress in providing means for the maintenance of rates. It was finally decided to restore the 20-cent rate from Chicago to New York Oct. 1, and the advanced rate on west-bound freight is to go into effect next Monday. There does not yet appear any obstacle to maintaining the advance, though there may be a considerable traffic yet to go forward on contracts. Some newspaper has manufactured an issue on the differences between the rates to New York and those to Baltimore and Philadelphia; but there never has been any movement to change those differences since the report of the Advisory Commission, and the nearest approach to it has been a claim that export rates—rates from the West to Liverpool, etc.—should be the same by all ports. Neither has there been any claim that the Baltimore & Ohio should not have a line to New York; it cannot be kept out of New York, and every trunk-line manager knows it. Another report is that the Grand Trunk may refuse to cooperate with the other railroads, when the fact is that the Grand Trunk has shown more anxiety than any other company to have some arrangement made, and as its shareholders have been entirely deprived of dividends, and the earnings for the first half of this year fell below the prior charges, there is good reason why it should desire business to be made profitable again.

The division of the traffic among the several roads could probably never be made if left to themselves, and, as heretofore, it will doubtless have to be left to arbitration. There will be a great many difficult questions to settle, and difficult questions will keep coming up, but there is no reason to suppose that rates cannot be made profitable and kept so nearly all the time, while important questions are still pending. They cannot be made high, however, and trunk-line profits on through traffic will certainly be much less for a year to come than they were in 1880, 1882 or 1883, though they may easily be and probably will be very much more than during the year past.

Of the 12 railroads reporting their August earnings this week, four have some increase over last year.

the chief gains being 17½ per cent. by the Fort Worth & Denver, 8½ by the New York & New England, and 9 by the Norfolk & Western. The larger decreases are 16½ per cent. by the Memphis & Charleston, 11½ by the Northern Central, 9½ by the Ohio & Mississippi and 11 by the Reading. More than half of the aggregate earnings of the 12 roads were made by the Reading.

The August earnings of several of these roads for five successive years have been:

	1881.	1882.	1883.	1884.	1885.
E. Penn. Va. & Ga.	\$254,312	\$280,287	\$302,564	\$312,753	\$328,499
Memphis & Chas.	91,887	87,565	101,993	114,063	90,824
N. Y. & New Eng.	280,594	346,490	391,825	300,794	327,247
Norfolk & W.	196,122	222,190	201,711	228,408	259,404
Northern Cen.	498,008	625,970	587,572	510,127	451,570
Ohio & Miss.	.....	.....	484,880	380,476	344,958
Reading	.....	.....	8,588,033	3,299,014	2,910,749
W. Jersey	.....	173,072	215,986	223,307	216,638

Thus while the earnings of three roads here were larger this year than last, they were smaller this year than in 1883.

The aggregate earnings in August of the 73 railroads that have reported so far have been:

	1885.	1884.	Decrease.	P. c.
Earnings	\$27,902,832	\$29,462,248	\$1,559,416	6.3

This is a larger decrease than in July, but an unusually large part of it is made by a few railroads, more than half by the Pennsylvania and the Reading.

The rapid increase of the average capacity of freight cars in recent years is strikingly indicated by the columns of *Sechrist's Railway Equipment and Mileage Guide*, where the capacity and dimensions of a large proportion of the rolling-stock are specified, as well as the numbers of the cars. Of the capacities specified, 40,000 lbs. is now more common than any other, anything less than 28,000 or 30,000 quite exceptional, and 50,000 lbs. is no longer rare. Casual inspection shows 180 flat cars and 10 box cars of 60,000 lbs. capacity on the Northern Pacific, and from 2 to 10 of the same capacity on a number of other roads. Of 50,000-lb. or 25-ton cars there are far more, as, for example, 3,250 on the Pennsylvania, 300 on the Northern Central, nearly 1,700 on the lines of the Pennsylvania Company, 300 on the West Shore—all of these being coal cars; while the Grand Rapids & Indiana has 22 box cars of that capacity, 34 and 36 ft. long, probably for extra long lumber. As convincing an evidence as any, perhaps, of the great increase in the average car-load, is the following classification list of the Pennsylvania Company, which includes all the freight rolling-stock of that company's system existing in sufficient numbers to form a class:

Kind of Car.	Class.	Inside Dimensions.			Capacity.
		Length.	Width.	Height.	
Long box....	O.	33 10½	8 4¼	7 4	40,000 and 50,000
Box.....	R.	27 5½	7 1¼	5 10½	26, 30 and 40,000
Refrigerator....	R.	27 4¼	7 10½	5 8¾	40,000
Provision....	M. & O.	21 5	7 10	5 10	40,000
Stock (stand-ard)....	M. & O.	23 1	7 10	5 10	40,000
Stock (stand-ard)....	P. B.	29 4¾	8 3	6 9	26, 28 and 30,000
Gondola (stand-ard)....	P. D.	29 8¾	8 0	2 6	26, 30 and 40,000
Gondola (widened)....	P. E.	29 8¾	8 4	2 6	50,000 and 60,000
Gondola (stand-ard long)....	E.	33 0	7 5	2 6	40,000
Drop bottom (stand-ard)....	D.	33 0	7 5	2 6	40,000
Hopper bot- tom (stand-ard)....	C.	28 5	7 7	3 11	50,000
Stone flat (stand-ard)....	S.	25 7	8 11	.....	50,000

Standard height of floor from rail, all cars, 4.0½. P. D. gondolas, built before present standards were adopted, have sides only, 20 in. and 2 ft. high.

The table is interesting, not only for its evidence as to average capacity, but for the variety of dimensions appearing among the standard types of a single line. It will be seen that in these 13 classes there are 10 different lengths (not counting differences of less than an inch), and 9 different widths, ranging by jumps of a few inches each from 7 ft. 5 in. to 8 ft. 11 in.; all in freight service only. For this diversity something can be said, no doubt, for the number of cars which it covers is great; but the diversity becomes ridiculous in the showing which the variety-cursed Erie makes of a little lot of 1,566 flat and gondola cars. A rough count shows that there are in it:

140 cars....	20 ft. 0 in. long.	87 cars....	33 ft. 0 in. long.
7 "....	" " " "	1,212 "....	" " " "
2 "....	" " " "	81 "....	" " " "
1 "....	" " " "	16 "....	" " " "
3 "....	" " " "	17 "....	" " " "

Eight different lengths between 30 ft. and 34½ ft.!

Longer Trains on the Elevated Road.

The management of the Manhattan Elevated has lately taken a step which, although adversely commented upon, appears to be emphatically in the right direction. It has increased the normal train of four cars to five cars. The longer trains have been running for the last three weeks on the Third Avenue line, and it is announced that the directors have thought fit to slacken their purse strings to a small extent, and will lengthen the station platforms so that as many cars

may be run on a train on the Sixth Avenue line. A large number of passengers who now have to stand up for a considerable distance will then be able to obtain the seat for which they have paid. The seating capacity of the elevated trains is absurdly low when compared with the practice of metropolitan traffic railroads elsewhere. On the London underground, the seating capacity of the trains run during the busy parts of the day ranges from 392 to 410, while on the above-ground lines, such as the North London and Great Eastern, the number of seats provided in a regular train is 678 and 656 respectively. These figures contrast with the 192 seats provided in an ordinary four-car elevated train, but it has heretofore been claimed that four cars were as many as could be hauled around the "sharp curves they have to traverse."

The running of five or six car trains, if practicable, will probably prove very profitable to the shareholders, not only for the ordinary reasons which make it desirable that an engine should haul a full train load, but also because a large number of travelers much dislike standing up in an elevated car, and having to struggle through a crowded gangway to get on or off the car at the risk of having one's pocket picked or watch stolen. A number of people are thus deterred from riding on the elevated, and the slight amount of extra fuel burnt in hauling the additional car or cars will, we feel sure, be more than repaid by the extra travel attracted by the greater comfort and accommodation afforded; while it would soon be impossible to accommodate the growing traffic otherwise.

An increase in the length of station platforms is very desirable, and some radical change should be made in the small number of stations situated on curves. The gap between the cars and the edge of the platform is dangerous, especially when any delay causes an unusual crowd on the station platform. Another much-needed improvement is the use of station name boards which shall be plainly legible both by night and day. With an overcrowded gangway, the brakemen are utterly incapable of making their voices heard a few feet inside the car, and many of the existing number or name plates are provokingly difficult to distinguish at night and altogether insufficient in number. An enameled board with white letters on blue or black ground is easily seen, but the best and simplest device is to paint the name of the station in black letters on glass globes surrounding the gas or electric light, and placed at frequent intervals about the station. We would emphasize the frequency. There should be at least one easily visible from every part of every car. If they should take the place of some of the hideous advertisements which are now displayed in space granted by the public solely to provide facilities for travel, so much the better.

It has been said that the increased weight of the trains will overstrain the supporting girders and columns, but it is now said that the present locomotives, having 11 in. by 16 in. cylinders and 38 in. drivers, are quite capable of dealing with the heavier trains, and therefore no increase is contemplated in the weight of the engines. It is evident that the structure of the elevated road is more severely strained by a locomotive than by a car. The use of a heavier engine would imply an additional strain, but the addition of one or two extra cars simply means that the weight of the train is distributed over a greater number of spans, the load on any one span remaining unchanged.

During the last two years the structure has been continually strengthened under the advice of a board composed of some of the best known bridge engineers of the day. The longitudinals under the rails have been doubled in number, and though made of the same section as the original I beams, an improved material, 70,000 lbs. steel, has been substituted for the iron originally used. The cross bearers have also been strengthened by additional plates in both top and bottom chords, and the bracing in the centre panel has been replaced by a solid web-plate. The counter braces in the main trusses have been enlarged to a section of 1½ in. square, and the connections have been overhauled, and better provision made against the wear and tear caused by vibration. The lateral floor bracing, formerly a single triangulation, has been doubled.

As our readers will perceive, most of these improvements have been directed toward stiffening the structure and enabling it better to bear the vibration caused by the frequent passage of trains. It would appear that these precautions are well calculated to render the structure not only safe, but more durable and better fitted to carry longer trains. Possibly ultimately, with the natural growth of traffic, the question of using engines of very considerably greater weight and power will arise. It may then become a question as to whether the structure can be adapted to the heavier engines, or whether it had better be entirely replaced. But that question has not yet come to the front or pressed for immediate solution.

Pennsylvania Railroad Earnings in August.

The August earnings of the Pennsylvania Railroad, as we noticed last week, show a larger decrease than those of any previous month. For 13 successive years the gross and net earnings and working expenses of the lines east of Pittsburgh and Erie have been:

	Gross.	Expenses.	Net.
1873.....	\$3,416,271	\$2,257,010	\$1,158,261
1874.....	3,303,931	2,137,747	1,166,184
1875.....	3,220,665	1,939,587	1,281,078
1876.....	3,305,022	1,707,565	1,597,457
1877.....	2,783,115	1,009,097	1,774,018
1878.....	2,972,601	1,485,950	1,486,651
1879.....	2,982,718	1,735,718	1,247,000
1880.....	3,723,355	2,168,874	1,554,481
1881.....	3,809,978	2,365,472	1,444,506
1882.....	4,671,179	2,638,317	2,032,862
1883.....	4,775,380	2,632,756	2,142,624
1884.....	4,617,894	2,466,385	2,151,509
1885.....	3,956,306	2,307,294	1,649,014

The decrease from last year has been :

Amount.	Gross earnings.	Expenses.	Net earnings.
Per cent.	\$661,588	\$159,093	\$502,495
	14.3	6.5	23.4

The decrease from 1883 is a little greater in gross earnings, but a trifle less in net. The gross earnings are the smallest since 1881, and so also are the working expenses and net earnings.

The surplus or deficit of the lines west of Pittsburgh and Erie in August has been :

1879.	1880.	1881.	1882.	1883.	1884.	1885.
Surplus	Surplus	Surplus	Surplus	Surplus	Surplus	Deficit
\$185,904	\$216,617	\$298,799	\$266,872	\$234,883	\$609	\$173,969

Thus in all these years there has never been a deficit in August until this year.

Adding the surplus to and subtracting the deficit of this Western system from the net earnings of the Eastern system, we have as the income from both systems in August :

1879.	1880.	1881.	1882.	1883.	1884.	1885.
\$1,442,904	\$1,771,098	\$1,743,305	\$2,299,734	\$2,377,507	\$2,152,178	\$1,475,345

Thus the income this year was nearly a third less than last year, and 38 per cent. less than the year before. The decrease from last year was not, however, \$914,501, and nearly 1 per cent. on the stock, as we said last week, but only \$676,833, which is little more than 1/2 per cent. of the stock.

For the eight months ending with August the gross and net earnings and working expenses of the lines east of Pittsburgh and Erie have been, for nine years:

Year.	Gross earnings.	Expenses.	Net earnings.
1877	\$18,999,848	\$12,617,050	\$6,382,798
1878	19,961,272	12,077,660	7,883,612
1879	21,179,685	13,077,215	8,102,470
1880	26,006,074	15,654,678	10,351,396
1881	29,143,240	17,210,607	11,932,633
1882	31,471,178	19,601,290	11,869,879
1883	33,258,912	21,104,925	12,153,987
1884	31,940,231	20,285,501	11,654,730
1885	28,961,006	19,632,281	9,328,725

The decrease from last year is:

Amount.	Gross earnings.	Expenses.	Net earnings.
Per cent.	\$2,979,225	\$653,280	\$2,325,945
	9.3	3.2	20.0

The decrease since 1883, when earnings were largest, is :

Amount.	Gross earnings.	Expenses.	Net earnings.
Per cent.	\$4,297,912	\$1,472,644	\$2,825,268
	12.9	7.0	23.2

More than two-thirds of the decrease in gross earnings and nearly five-sixths of the decrease in net earnings since 1883 occurred this year, when the gross earnings were the smallest since 1880 and the net earnings the smallest since 1879.

The surplus or deficit of the lines west of Pittsburgh and Erie for the eight months ending with August has been:

1879.	1880.	1881.	1882.	1883.	1884.	1885.
Deficit	Surplus	Surplus	Surplus	Surplus	Deficit	Deficit
\$236,854	\$1,874,547	\$2,034,670	\$21,902	\$572,529	\$12,491	\$1,187,314

The decrease on the Western system since 1880 is \$3,061,861, and since 1881 it is \$3,241,984.

Adding the surplus of the western to and subtracting its deficit from the net earnings of the system east of Pittsburgh and Erie, we have as the income from the two systems:

1879.	1880.	1881.	1882.	1883.	1884.	1885.
\$7,805,616	\$12,825,943	\$13,987,303	\$12,491,781	\$12,726,513	\$10,941,179	\$8,141,421

The decrease since last year is \$2,799,758, which is nearly 3 per cent. on the capital stock now outstanding. The decrease since 1881 (when profits were largest) is \$5,846,000, or 7.2 per cent. on the stock then outstanding.

These figures show very clearly that it was full time to restore through rates and try to make something out of the traffic. The very large decrease in August, however, was partly due to the fact that for three years previously August earnings had been extraordinarily large. Before 1882, the increase in earnings from July to August had usually been moderate. It was \$436,000 in 1878, \$300,000 in 1879, \$274,000 in 1880, and \$29,500 in 1881; but in 1882 it was \$522,000, in 1883 \$644,000, and in 1884 \$629,000. This year the increase from July to August is \$271,000. The failure of the winter wheat crop was likely to reduce business in August more than in any other month.

Chicago through shipments eastward for the week ending Sept. 26, including only flour, grain and provisions this year and last, and all freights in previous years, are reported as follows, in tons:

1880.	1881.	1882.	1883.	1884.	1885.
35,928	52,059	33,076	39,670	40,516	54,757

Thus the shipments of the week were larger this year than in any other, and were 35 per cent. more than last year. Including all freight, the increase must have been much greater.

For six successive weeks the total Chicago shipments and the percentage going by each railroad have been:

Tons:	Aug. 22.	Aug. 29.	Sept. 5.	Sept. 12.	Sept. 19.	Sept. 26.
Flour	2,077	2,592	2,182	3,913	4,990	5,054
Grain	20,881	20,870	22,835	30,986	35,308	40,034
Provisions	10,341	7,840	10,005	13,262	11,863	9,669
Total	33,299	31,302	35,022	48,161	52,161	54,757
Per cent.:						
C. & Grand T.	12.4	17.1	8.1	5.2	6.9	16.3
Mich. Cen.	18.5	13.3	19.2	20.7	25.3	24.8
Lake Shore	13.5	10.9	19.7	22.5	19.7	16.2
Nickel Plate	18.0	16.2	9.7	11.9	8.8	10.0
Ft. Wayne	14.1	13.3	14.9	11.4	15.6	12.0
C. St. L. & P.	8.3	7.9	9.5	12.2	12.5	7.9
Balt. & Ohio	6.3	8.6	6.1	6.7	5.2	6.9
Ch. & Atlantic	8.9	12.7	12.8	9.4	6.0	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

The total increase last week over the previous week was 5

per cent., but there was a decrease of 17 per cent. in the provision shipments, and the increase in flour shipments was trifling, while the grain shipments increased no less than 13 1/2 per cent. The grain shipments were indeed extraordinary for a week of open navigation, and they were not very largely exceeded in the weeks of heaviest total shipments last winter and spring, when the totals exceeded 70,000 tons. Thus the weeks when the grain shipments have exceeded 40,000 tons this year, the grain, flour and provision shipments have been, in tons:

Week to:	Flour.	Grain.	Provisions.	Total.
Jan. 17	10,905	42,977	13,171	67,053
" 31	14,914	50,340	10,453	75,737
Feb. 7	19,219	52,131	10,025	81,375
March 21	23,753	47,087	5,134	75,974
" 28	20,236	44,805	6,041	71,082
April 4	22,267	48,804	5,948	77,019
" 11	22,108	54,188	6,783	83,089
" 18	22,081	40,650	7,188	70,519
May 9	17,041	53,360	8,069	78,500
" 16	14,615	43,018	7,117	64,750
Sept. 26	5,054	40,034	9,669	54,757

Thus flour helped greatly to make the large shipments last spring, when none could go by lake, four times as much as last week having been forwarded by rail in five of the above weeks. The flour shipments from Chicago now are comparatively insignificant, partly because there is not a great deal manufactured, but also, probably, because shipments are made largely from Lake Superior ports. The provision shipments recently have been larger than last spring, when total shipments were largest.

Thus for the five weeks ending April 18 and the five ending Sept. 26 the shipments were:

5 weeks to April 18.	Flour.	Grain.	Provisions.	Total.
5 " " Sept. 26.	111,045	233,624	31,104	375,773
	18,731	150,033	52,639	221,403

Thus the provision shipments, only a very small part of which ever go by lake, were two-thirds larger in the last five weeks than in the five spring weeks of largest total shipments. Then the provisions were but 36 per cent. of the flour shipments, now the flour is but 36 per cent. of the provision shipments. The latter made but 8 1/4 per cent. of the whole in the spring, but are 23 1/4 per cent. of the whole recently.

The changes in percentages last week are partly such as the decrease in provision shipments would be likely to cause, as in the reduced shares of the two Pennsylvania roads, but partly just the contrary, as in the largely increased share of the Chicago & Grand Trunk. This gain of the Grand Trunk is due to its suddenly taking what is for it an extraordinarily large quantity of grain—more than any other road except the Michigan Central. The Grand Trunk's grain shipments for seven successive weeks have been:

Week ending:	Aug. 16.	Aug. 21.	Aug. 28.	Sept. 5.	Sept. 12.	Sept. 19.	Sept. 26.
	505	1,793	3,005	1,365	1,022	1,822	7,110

Thus, it carried nearly as much grain last week as the aggregate for four preceding weeks, which could hardly have happened unless it offered inducements last week greater than it offered previously. The result certainly showed that it is possible for it to secure a larger share of the business than it has been receiving recently. The three Vanderbilt roads carried 51 per cent. of the whole, against 53.8 per cent. the week before; the two Pennsylvania roads 20.8 per cent., against 28.1. The two Pennsylvania roads carried 52 1/2 per cent. of the provisions last week, and the Fort Wayne carried 27 1/4 per cent. of the flour, and more than any other road; and it was only because these staples formed an unusually large share of the total traffic that the Pennsylvania lines had so small a share of the whole. They carried but 11 per cent. of the grain, and grain formed 73 per cent. of the whole. Rates apparently ranged from 10 to 12 cents per 100 pounds, but were higher rates to interior points which ordinarily take seaboard rates, as many towns in Pennsylvania, New Jersey and New England do, and some in New York.

The Western connections of the trunk lines gave notice that the contracts outstanding and other complications prevented their advancing rates last Monday to the 20-cent basis, and they ordered the advance for Thursday, Oct. 1. The expectation of this should largely increase shipments this week, under ordinary circumstances, but there is no great stock of anything to forward except wheat, and for that the lakes and canal are likely to afford as cheap transportation as can well be desired for the remainder of the season. Doubtless the proposed advance will very largely decrease wheat shipments, and somewhat decrease corn shipments; but the larger part of the shipments now are for domestic consumption, and they go very largely to interior points, which will take just as much grain at a 20-cent rate as at a 10-cent rate, and receive nearly all of it by rail. At all events, it will be better for the railroads to carry but 8,000 tons a week at a 20-cent rate, than to carry 40,000 at a 10 or 12-cent rate. The lightest rail grain shipments in any week this year so far were 7,528 tons, in the last week of July, when a 20-cent rate was pretty well adhered to at Chicago, and that place was receiving very little grain.

Notwithstanding their unprecedentedly low rates, the five old trunk lines carried a smaller amount of freight eastward in the summer months this year than in any other since 1879, the decrease from last year being about 5 per cent. in the total movement of freight originating at their western termini or at points further west.

The Northwestern wheat receipts for the week to Sept. 19 were considerably less than the week before, and the decrease affects most of the leading markets—Duluth more than any other, but St. Louis next to it. Long-continued rains, which

had made the roads very bad, had a great deal to do with the decrease, which is indicated by the fact that there was a large decrease in the corn receipts the same week. On the other hand, the wheat shipments increased largely (40 per cent.), and though there was a decrease in corn and oats, the total grain shipments were about the same as the week before, the rail shipments being about 53 1/4 per cent. of the whole.

The receipts and shipments of all grains at the Northwestern markets and the receipts of the Atlantic ports have been, in bushels, for each of the last six weeks:

Week to :		Northwestern.		Atlantic
		Receipts.	Shipments.	receipts.
Aug. 15	92	6,289,839	4,891,915	3,631,409
" 22	"	5,466,953	4,312,275	3,291,797
" 29	"	6,144,793	5,082,229	5,455,896
Sept. 5	"	6,785,604	6,251,483	5,444,802
" 12	"	6,104,407	5,526,288	4,533,743
" 19	"	5,315,709	5,553,530	4,743,504

Thus the receipts of the Northwestern markets were less in this last week than in any other of the six, but the shipments were larger than in any week except one. The Atlantic receipts were a little larger than the week before, but less than for two weeks previous.

The New York Central & Hudson River Railroad last Wednesday declared a quarterly dividend of 1/2 per cent., the same as the last one, making 3 1/2 per cent. for the fiscal year ending Sept. 30. There is said to have been some disappointment that 1 per cent. was not declared this week, which is hard to understand, as the reports for the first three-quarters of the year showed that the surplus over fixed charges for that time was only \$2.35 per share, while \$3.00 had been divided, and the last quarter cannot have been much more profitable than the previous one, when less than 1/2 per cent. was earned. Perhaps it was thought that because of the prospects of better earnings with the cessation of the West Shore competition, the directors would make a better dividend and trust to luck to earn it hereafter. It should be remembered, however, that dividends will be expected in future quarters, and that the earnings are not likely to be so very large, at best, as to make it desirable to anticipate them.

The Northern Central Railway makes a much better showing this year than its near neighbor and relative, the Pennsylvania, its gross earnings for the eight months ending with August having decreased but 4 per cent. and its net earnings less than 1/2 per cent. In August, however, it suffered a decrease of 11 1/2 per cent. in gross and 7 per cent. in net earnings. It is not long that this road has had considerable net earnings; for the six years ending with 1879 they averaged \$1,279,350; but they have grown greatly since, having been for the last five years:

1880.	1881.	1882.	1883.	1884.
\$1,795,120	\$1,656,254	\$1,957,853	\$2,256,526	\$2,053,484

This enabled it to begin paying dividends in 1880; 2 1/2 per cent. was paid that year, 6 in 1881, 7 in 1882, and 8 in the last two years. The stock is so small that even 8 per cent. is but three-eighths of the charges for interest and rentals, so that a small increase or decrease in profits may make a large difference in the dividend. There has been a large surplus, however, for several years, last year equal to more than 5 per cent., and in 1883 to 7 1/2 per cent. on the stock.

The gross and net earnings in August for six years have been:

	1880.	1881.	1882.	1883.	1884.	1885.
Gross...	\$453,924	\$498,008	\$625,960	\$587,273	\$510,427	\$451,370
Net....	122,957	94,336	331,046	280,211	218,880	180,484

Thus the decrease in gross earnings from 1884 is but 11 1/2 per cent., from 1883 it is 23 and from 1882 28 per cent., and the net earnings are 36 per cent. less than in 1883 and 46 per cent. less than in 1882.

The Mobile & Ohio never boasts of very large net earnings, but in the summer months its margin of profit is very narrow indeed. Last July its working expenses exceeded its gross earnings by 4 per cent., and the year before they were 97 1/2 per cent. of the earnings, leaving net earnings but \$3,431. These were unusually unfavorable years, however, the gross and net earnings in July for five years previous to 1884 having been:

	1879.	1880.	1881.	1882.	1883.
Gross.....	\$110,491	\$131,621	\$135,549	\$135,415	\$134,464
Net.....	13,877	15,877	15,067	12,099	20,770

On the other hand, for six years previous to 1879 the expenses had always exceeded the earnings in July, by from \$3,303 to \$35,794.

The fiscal year of the company ends in July, and its gross and net earnings and working expenses for nine years have been:

Year.	Gross earnings.	Expenses.	Net earnings.	P. c. of exps.
1876-77	\$2,072,634	\$1,909,408	\$163,226	75.2
1877-78	2,098,540	1,722,219	376,321	71.4
1878-79	1,830,620	1,451,151	379,469	69.3
1879-80	2,284,615	1,459,649	824,966	63.9
1880-81	2,377,817	1,562,486	815,331	65.7
1881-82	2,104,724	1,602,145	502,579	74.0
1882-83	2,271,058	1,641,025	630,033	72.3
1883-84	2,278,617	1,547,497	731,120	67.9
1884-85	2,101,920	1,576,186	525,734	75.0

Thus the gross and net earnings last year were the smallest since 1879, and the net earnings were but \$996 per mile of road, and were 28 per cent. less than the year before. This was probably due to a reduced traffic. In 1883-84 the traffic of the road was the largest it ever had, but its rates were lowest then. The interest on the mortgage debt amounts to

\$420,000 per year, and the remainder of the debt consists of four classes of debentures, on which interest is due only when earned.

The report of the Secretary of the Chicago Lumbermen's Exchange shows the following receipts of lumber and sales and shipments of the same for the eight months ending with August:

Lumber, M. ft.	1885.	1884.	Decrease	P. c.
Receipts.....	1,033,139	1,177,986	144,847	12.3
Sales and shipments...	962,069	1,141,804	179,735	15.8
Shingles, M.				
Receipts.....	400,063	501,178	101,115	25.7
Shipments.....	381,323	484,581	103,258	21.3

This is a very large decrease in the article which forms a much larger part than any other of the west-bound freight from Chicago.

The exports of rails from Great Britain to the United States for the eight months ending with August for the last seven years have been, in tons of 2,240 lbs.:

	1879.	1880.	1881.	1882.	1883.	1884.	1885.
Iron.....	331	74,875	77,579	20,813	2,519	.....	.....
Steel.....	13,201	82,814	136,652	132,413	44,704	16,118	4,843
Total.....	13,532	157,689	214,231	153,226	47,313	16,118	4,843

Thus the exports to this country this year were 70 per cent. less than last year, only about a tenth of what they were in 1883, and not a fortieth of what they were in 1881, when they were largest. Exports of iron rails have ceased entirely, though they were very large, and 48 per cent. of the whole in 1880 and 36 per cent. in 1881. Very few iron rails have gone to any country since we ceased to take them, India taking 56 per cent. and the Argentine Republic 21½ per cent. of the whole this year.

Commenting on our statement that iron cabs have been introduced on the New York Elevated roads, *The Engineer* says, "In this matter, as in many others, our American friends are a long way behind English practice. It is doubtful, indeed, if a wooden cab ever was seen on an English locomotive." It is not so long ago that neither a wooden nor any other cab had ever been seen on any English locomotive, and then our English friends were certainly a long way behind our times; whether a lack of iron cabs can be said to put us behind now may be left to engineers when the sun beats down in July with the thermometer 100 degrees in the shade.

A correspondent asks why an "air-pump," by which he probably means a fan, cannot be used on locomotives to save the evils of small nozzles and back pressure. It can; and, in fact, it was so used over fifty years ago, before the evils of back pressure had ever been suffered, and on the very engine where they were first suffered, and where, by the lucky chance of discharging the exhaust into the smoke-box, its capabilities for creating draft were first discovered. But the economy in so doing is much like blowing a fire with a bellows to save the cost of a chimney. It does not pay; which we mention to save our correspondent, and perhaps others, from wasting inventive talent.

Record of New Railroad Construction.

Information of the laying of track on new railroads in the current year is given in the present number of the *Railroad Gazette* as follows:

Americus, Preston & Lumpkin.—Extended west to Preston, Ga., 10 miles.

Carnesville.—Completed from West Bonersville, Ga., south to Carnesville, 9 miles.

Kansas City & Southwestern.—Extended southwest to Winfield, Kan., 4 miles.

Minneapolis, Sault Ste. Marie & Atlantic.—Extended from the Flambeau River east to Deer Tail, Wis., 5 miles.

Oregon Railway & Navigation Co.—The *Moscow Branch* is extended from Pullman, Wash., east to Moscow, Idaho, 10½ miles.

Rome & Carrollton.—Track laid from Rome, Ga., southward, 8 miles.

This is a total of 48½ miles on 6 roads, making 1,743 miles thus far reported for the current year. The new track reported to the corresponding date for 14 years past has been:

	Miles		Miles.
1885.....	1,743	1878.....	1,420
1884.....	2,065	1877.....	1,505
1883.....	4,381	1876.....	1,719
1882.....	7,589	1875.....	861
1881.....	5,034	1874.....	1,125
1880.....	3,928	1873.....	2,867
1879.....	2,338	1872.....	5,066

This statement covers main track only, second or other additional tracks and sidings not being included.

NEW PUBLICATIONS.

Memoirs of the Tokio Daigaku (University of Tokio) No. 11. A System of Iron Railroad Bridges for Japan. By Prof. J. A. L. Waddell. Two volumes; text and tables and plates. Published by Tokio Daigaku, Tokio. 2545, Japanese Era. 1885, A. D.

This elaborate and handsome publication at once does credit to the author and to the civilization of Japan. It is a treatise addressed "to the civil and mechanical engineers of Japan," with the primary purpose of pointing out to them the superiority of American to English types of bridges, and the mistake made by the Japanese in following the practice of the latter. "If an American engineer," says the author, "were sent to inspect and pass judgment upon a Japanese railroad truss bridge, he would condemn it before getting within a hundred yards of the structure, for all such bridges have pony trusses without any side bracing." He then specifies the objections to other details; the inclined

Warren girder struts "formed by trussing, in the most inefficient manner possible, two very thin wide bars"; "the waste of material at all points except the centre of the upper chord, and the box form of the lower," "the apologies for stay-plates, containing one rivet at each end, and spaced about 3 ft. apart, which connect the opposite flanges on the undersides of the top chords; the heads on the main diagonals formed by riveting a piece of plate on each side of the bar at the eye; the smallness of the connecting plates"; the paucity of rivets, the absence of any guard-rail, etc.

On account of these and other defects the author concludes that "the trouble with English bridges, and, consequently, with those of this country (Japan), is, that they are designed by railroad engineers, who have not made a special study of bridge designing, and are therefore incompetent to do the work intrusted to them." On the other hand, the author points out in detail his reasons for the assertion: "That the United States lead the world in bridge-building is a fact undisputed even in Europe." The cost per pound of finished bridges he finds to be now in America about 4½ cents f. o. b., while the only English manufacturer who would quote prices without seeing working drawings named 4 cents; this difference, he claims, being far more than made up by difference in quality of iron, ease and quickness of erection, and less weight, due to better disposition of material.

A book made up simply or chiefly of fault-finding and "claims," however important and true, would not be likely to command much attention. Such is far from being the case with the present treatise. The quotations so far made have been wholly from the introduction; but this is followed by one of the most elaborate treatises on railroad bridge-building which has appeared from any press, and one which, if its merits in detail bear any proper relation to the apparent excellence of the work as a whole, we should judge would well justify republication in this country, with some necessary modifications, noticeably the small rolling loads assumed, which we apprehend the Japanese will have reason to regret, if they are using them. Pending such possible republication, we omit any criticisms of details, which would hardly be profitable when referring to a work which is, as yet, accessible only to a few engineers in Japan.

The skeleton, so to speak, of the work is excellent, and well calculated to supply the want referred to in our recent notice of a treatise of the same author on highway bridges; viz., for "a work taking up the various details in succession in a practical way, pointing out the differences of practice which exist and the effect upon cost of construction and erection of various designs, as well as giving ready data by which the total cost, weight and other things important to know about a proposed bridge can be determined and compared together."

Among the details given are 29 different truss diagrams for spans of from 60 to 300 ft., and 13 large plates showing tools and false-work for erection, floor systems, truss details, etc., etc. Among the 24 large broad-sheet tables is a full table of weights of iron and dead loads of single-track bridges, which we hope to reprint as a matter of general interest, although it is computed for the very light live load of 1,200 lbs. per foot of bridge (for 150 ft. spans and under; decreasing to 1,050 lbs. for spans of 300 ft.) preceded by two locomotives with 37½ tons on six drivers in a total length of 28 ft. and wheel-base of 13 ft. 6 in. There are also tables for almost every other working detail; some of them, together with much of the text, being taken from the treatise on highway bridges referred to, although there is also much that is new.

The character of the text can be judged from the headings of some of the chapters: "Floor system, re-railing and ditching apparatus"; "Specifications" (full set given); "Live and dead loads, wind pressure"; "Stress"; "Riveting"; "Pins"; "Double-track bridges"; "Economy"; "Bills of Material and Estimates"; "Working drawings"; "Method of Designing"; "Order Bills and Shipping Bills"; "Erection and Maintenance"; "Effect of Brakes," etc., etc. A useful glossary of terms is also added.

The Brussels Railroad Congress.

II.

The third question submitted to the Second Section (on Motive Power and Rolling Stock) concerned the safety of trains. Under this head continuous brakes were discussed, reports of the working of most of those now on trial in Europe being cited. The Section refused to put itself on record for or against automaticity in brakes, but it noted that continuous brakes had rendered good service of late years, and recommended that their use be extended "in all cases where such use is compatible with the conditions affecting the operation of the several companies."

There was also discussion of the use of counter-pressure steam on long grades, and a long account of working the long 2½ per cent. grades (132 ft. per mile) which extend from 25 miles on one side and 19 on the other of the Gotthard Tunnel.

Under the head of the construction of passenger cars to secure safety, the talk was of continuous draw-bars, of the method of fastening car-bodies to their under frames, and finally of tire fastenings. Under the head of communication between passenger cars and the engine, experience with the cord signal in England, with an electric system in France, and with pneumatic systems was brought forward. The Section resolved unanimously that communication between the passengers and the trainmen (who in Europe are not in the

cars) is desirable, especially where there are long runs without stops.

To this Section had been referred the very important question of the arrangements to be taken for the safety of employees engaged in station and yard service, but it considered only the question now so prominent here, namely, the mechanical coupling and uncoupling of cars.

No member had anything to offer which had been successful enough to be considered a practical solution of the question, and there was no opposition to the declaration by the Section that, "In view of the fact that, so far, no mechanical apparatus for coupling and uncoupling cars has given good results, the Section expresses its desire that investigations be made in this direction," which leads one to suppose that we may flounder out of this slough of despond before the Europeans do.

With regard to electricity, this Section refused to say that for transmitting motion to a distance, electrical methods can be trusted as implicitly as mechanical methods, if constructed and worked with equal skill, but it agreed to declare that important advances in the use of electrical railroad appliances have been achieved; and that it is probable that further progress will be made which will increase safety materially. That as to whether electrical or mechanical apparatus should be preferred, it is a question of kind, distance, climate, nature of apparatus, etc., which can only be determined by a study of the circumstances in each particular case.

The Third Section considered, generally, the working of railroads. The following is from an abstract of the proceedings prepared by Ch. Ramaeckers, Manager of Tracks and Structures of the Belgian State Railroads, Secretary of the Section:

One question was concerning the most comfortable rolling stock for passengers, in which cars with side entrances and compartments, and those with a central passage, Yankee-fashion, were the rivals for favor. The preference will be determined, said the Section, according to climate, the customs of the country, the nature of the trains, the density of traffic, the frequency of stops, the time spent at stations, the numbers getting on and off at a single place, the method of checking ticket sales and numbers of passengers. Likewise the arrangements to be made to secure safety should vary greatly with the circumstances. To adopt general rules for such cases would do more harm than good, and the Section resolved that it is unwise to fix upon a uniform type for coaches.

With regard to heating and lighting cars, the Section contented itself with formulating the objects which it is desirable to accomplish, namely:

1. A soft, steady, white light sufficient to make it easy to read in every seat in the car.
2. The use of light-colored paint and upholstery in the cars.
3. The minimum heat to be 66 degrees Fahrenheit.
4. Equality uniformity and constancy of temperature in every part of the compartment.
5. A renewal of the source of heat without discommoding the passengers and at the longest possible intervals (not less than 5 hours).
6. Sufficient ventilation of the compartment to be assured by the system of heating it.
7. Independence of the cars of each other, so far as lighting and heating are concerned, each vehicle to carry the apparatus necessary for itself.

The second general question before the Third Section regarded means of communication between stationmen and trackmen, such as electric and other bells, used on many continental railroads. Some members doubted the utility of such communication, and especially they doubted if it were worth what it costs. Others thought it should be used only on single-track roads; others again valued it for giving notice from the stations to the gatemen at crossings, but not for making signals from the road to the station (as in case of accident), which is rarely used, and, therefore, apt not to work when wanted. The great majority, however, while admitting exceptions, both on roads of very light traffic where trains are slow, and on trains of very heavy traffic, where grade crossings should not be permitted, thought that apparatus of this kind is an important help toward safety on most double-track as well as single-track roads. On single-track roads they sometimes make it possible to repair mistakes which the stationmen may have made in dispatching trains, and on double-track roads they facilitate the movement of trains, make more secure the passage of street traffic at level crossings. The giving of signals from the road to the stations found much less favor. Some thought they never should be given by the ordinary trackmen, but others found no objection to this when the signals are limited to a few simple ones (such as, for instance, one ring might mean "train has just passed on up track," three rings, "up track is broken"), and no telegraphic manipulation is required. Again, the opinion was expressed that important signals, such as a request to send a helping engine (like the others given by a connected series of long and short rings) should never be given except by trainmen. A serious objection preferred was that such apparatus is costly. Finally the Section resolved almost unanimously that, "with some exceptions, under peculiar circumstances, it is desirable that single-track roads should have apparatus by which notice of the departure of trains may be given from the stations to the trackmen, to better secure the running of trains and to protect highway traffic at certain grade crossings where it is not easy to see the track far; that it is often useful to have means of signaling to the station from certain points on the track when the stations are a considerable distance apart; and that so far

¹ Designing of Ordinary Highway Bridges. By Prof. J. A. L. Waddell. John Wiley & Sons, New York. *Railroad Gazette*, April 13, 1885.

as possible these latter signals should be given by the trainmen.

The Section declared that apparatus for this purpose actually in use in several countries works most satisfactorily, but it hoped means would be found for providing it at less than the present cost.

The Section then took up the block system, beginning by adopting the following definitions:

The *permissive block system* is that in which the train simply shows on passing a signal that the section in advance is blocked, with any formality.

The *conditional absolute block system* is that in which a train passes the block signal after having waited a given time and after having fulfilled certain formalities.

The *absolute block system* is that in which a train never passes the block signal unless it is found that the apparatus is out of order and the block should have been opened.

There was much discussion of different block systems, and much difference of opinion with regard to automatic block signals.

The Section declared that most railroads, having adopted the English principle of the block system, have abandoned the permissive block, as formerly used in England; that with the exception of some lines peculiarly situated they seem to prefer the absolute block system, some, however, using negative signals—no signal indicating safety—and others positive signals—trains not moving unless the signal says the road is open. The apparatus for this purpose, securing the maximum of safety without obstructing traffic, should, it was declared, satisfy the following conditions:

"1. Every train entering a block section should be covered by a signal.

"2. This signal should not be removed until the train has reached the end of the section.

"3. The signalman before whose post a train passes should not open the section behind this train until the train which has passed is covered by a signal at the entrance of the next section, or until it is side-tracked so as to leave the main line clear."

Great interest was shown in the different methods of informing the signalman at one end of a section when a train has passed off the other end, and of controlling the setting of the signals.

As regards the means of preventing accidents at switches and crossings, the Section resolved that so far as possible the junction points of the principal lines should be within the station yards; and that when they must be put between stations, cuttings, steep grades and sharp curves should be avoided; that level crossings should be avoided, and that converging lines should be made to run parallel for some distance; and that at all junctions switch bolts and clamps should be used which permit them to be passed at speed.

Not much difference of opinion was developed in the discussion of preventing accidents at draw-bridges. All agreed to a resolution that draw-bridges should have an interlocking apparatus between the bridge fastening and the signals which cover it such that the bridge cannot be loosed until the signal to stop is set; that when the signal to stop is not set in its normal position, the mechanism which sets it should be such that a certain time must elapse after the signal is set before the bridge can be loosed, the minimum of this time being that required for a train to run the distance between the signal and the draw-bridge. It was also declared desirable that a fish-joint, or the equivalent thereof, should unite the rails on the draw with those of the connecting rails, to permit the passage of trains at full speed.

It was the general opinion that the capacity of a railroad is increased by the block system, but it was more divided as to the effect of interlocking apparatus, some holding that it always permits the more complete utilization of a yard, while others thought that interlocking could be overdone, the resolution saying that it always promotes safety, and often increases the capacity of yards.

The last subject on the programme of this Section was union stations. With rare exceptions, it was said, and especially for passengers, where there are several roads, their stations should be used in common; but on the other hand, there should be but one management for the union stations. As to the joint expenses, it was suggested that they be divided in those due to passengers, those due to freight and those due to the transfer of traffic from one road to another, and that each be divided among the companies in proportion to the number of passengers, the number of tons of freight and the number of cars interchanged, but there was no general agreement as to this, and practices were found to differ greatly.

The Ventilation of the Mann Boudoir Cars.

The following description of the system of ventilation on the Mann boudoir cars was prepared by the company some time since for the "Car-Builders' Dictionary."

The theory of this system is: Perfect ventilation, without dust or draughts, coupled with the means of tempering the atmosphere, both in cold and hot weather, to a comfortable point. To accomplish this, provision is made for simultaneously taking in and filtering the fresh air and drawing out through the roof all foul or over-heated air, such provision being sufficiently ample to secure a complete change or renewal of the atmosphere every three minutes. The windows of the car are so constructed and packed as to admit neither air nor dust. The intake of air is altogether by means of a collecting funnel located on the roof, toward one end, and nearly over the heater closet. The outtake of foul air is by means of strong suction-ventilators located in the roof within the several compartments and the corridor. The deck roof with its drop windows is superseded by a continuous elliptical arch; thus no air enters or escapes except through the channels designed for the purpose.

The collecting funnel is flared in both directions so as to gather air whichever way the car moves. The air thus collected is forced in a strong current downward into the bottom

chamber of the ice and filter closet, where it passes through a quantity of "excelsior" [a mattress stuffing, made of long curly hard-wood fibres], loosely held up on pins, which substance being moistened by dripping of ice from above, filters the air of all cinders and dust. This filter closet adjoins the heater room, and communicates with it by an aperture above the ice space.

After passing through the excelsior, the air is forced through and around the ice above; it then enters the heater-room, from which it escapes through a flue extending the length of the car down the corridor, in the angle of the floor and wall. From the flue the air is discharged into the corridor through a series of registers opposite the several doors of the compartments, which, being lowered, admit it to the latter.

The flue also contains three of the heater-pipes, by which means the air, after having taken up the surplus heat of the heater-room, is still further heated before being discharged for service.

The capacity of the ice chest is 600 lbs. In summer time the full amount of ice is used, and effects a lowering of the temperature of about 10 degrees. In winter only, sufficient ice is used to moisten the filtering excelsior.

THE SCRAP HEAP.

Quick Work on the Denver & Rio Grande.

A correspondent sends us the following facts: "The third transcontinental tea train over the Denver & Rio Grande road, consisting of 15 cars, passed through Pueblo, Col., at 8 o'clock on the morning of Sept. 4. A fine piece of switching work was done by the railroad boys when it arrived; they changed engines, changed cabooses and added three more cars of freight to the train, all on the wing, not stopping the train at all, which kept right on running through the town at the rate of not less than 12 miles an hour. The manner in which this was performed was as follows: The engine was held ready on the main track, while the incoming engine was cut off and switched on a side track, allowing the cars to run up to the fresh engine, which started up and allowing them gradually to come together. The caboose was dropped off, and a third engine was ready on another side track, and overtook the train after it got past the switch, and attached three cars and a new caboose while all were in full motion. This was done under the supervision of the yardmaster Sam Stewart, late of the Ohio & Mississippi.

"These three tea trains, of which the one just described was the third, have caused large mention among railroad men in Denver. The men at Grand Junction and Salida did the yard work in from 5 to 12 minutes, and telegraphed to Pueblo: 'How is that?' This put the Pueblo men on their mettle, and the second train was stopped in that city only 1 minute and 40 seconds, and the third train is recorded as having arrived and departed at 8 a. m., not showing any stop at all.

"The train was brought to Pueblo by Engineer Hill and Conductor Harrison, having come from Salida, 97 miles, in 3 hours and 27 minutes. It was taken north by Engineer Daly and Conductor Wilds, and reached Denver, a distance of 120 miles, in 6 hours and 20 minutes. This freight was transferred at Denver to the Burlington & Missouri cars at the rate of 10 minutes to each car.

"This second train consisted of 25 carloads of tea on the way from San Francisco to New York, valued at nearly \$1,000,000. It made the trip over the entire length of the Denver & Rio Grande from Ogden to Denver, including the Mountain Division between Grand Junction and Cañon, over grades of 211 ft. to the mile, at the rate of 20 miles an hour."

A Locomotive Music Box.

In the general waiting room of the passenger station of the Old Colony Railroad, in this city, stands a finely finished model of one of the standard eight-wheel locomotives of the Rhode Island Locomotive Works. It is made of polished steel and brass, beautifully ornamented with burnished gold and silver. It is perfect in all its details and appointments, and is made on a scale of $\frac{3}{4}$ in. to the foot. It stands upon a steel track, and is inclosed in a large glass case, mounted upon a substantial cabinet in which is a music box. By dropping a nickel in an aperture made for the purpose the music box is set at work, and the driving wheels of the locomotive revolve rapidly. Not the least interesting feature about the machine are the spectators who patiently wait for someone to drop that nickel into the box. The model is well worth seeing and is constantly surrounded by crowds of people.—*Boston Traveller*.

A Railroad Ghost.

Conshohocken, the veritable abode of fairies, hobgoblins and spooks of various natures and fancies, is again agitated over a ghost. This time it is a railroad ghost of a horrible nature. Some years ago an unknown man was killed on the Reading Railroad opposite the rolling mills of Alan Wood & Co. A boy named Brooch and an old lady named Brooks met their death by the same means and at the same place, which is but a short distance above where the recent collision took place on the Pennsylvania Railroad last June, in which three persons were killed. The superstitious residents give this as a good reason why his ghostship should travel this particular spot.

Every night, or nearly every night, a man, myth or whatever it may be, appears at the spot above designated and travels at a slow pace. Approaching trains do not bother him in the least. The locomotives come, whistle, run him down and pass over him, but when the train stops his horrible sight of headless or mangled bodies can be seen, nor can any trace of him be found. The superstition has taken such a hold on the citizens that after dark the region of his ghostship's travels is entirely vacated, and all old and young regard the spot as haunted, while a few have dubbed it with the name of "Railroad Sheol," while the non-superstitious have rivalled the name with that of "Railroad Cemetery."—*Philadelphia North American*.

Delusions.

In an American railroad car there once journeyed a quiet gentleman having between his feet a basket of peculiar shape. An inquisitive stranger asked him what the basket might contain. "It contains a mongoose," was the answer. "And what is a mongoose?" the stranger queried. "A mongoose," the gentleman replied politely, "is an East Indian animal that kills snakes." "And what might you want a mongoose for now?" continued the inquisitive stranger. "Well," answered the gentleman, "I have a brother-in-law who has been a little too fond of tanglefoot whisky, and sometimes he sees snakes, and so I am taking this mongoose to him to kill the snakes." The inquisitive stranger hesitated a moment and then he said, "But those are not real snakes your brother-in-law sees?" "I know it," returned the quiet gentleman, "and this is not a real mongoose!"—*The Critic*.

Railroad Young Men's Christian Association.

The Detroit branch of the Association has issued an illustrated chart, entitled, "First Aid to the Injured," for the benefit of railroad men. It contains simple and intelligible instructions as to what to do in case of accident while wait-

ing the coming of a surgeon, and is illustrated in such a way as to render the directions more plain. These charts the association has placed in a number of cabooses, round-houses, shops and switch-houses in the yards, and at other points along the Michigan Central and other roads. It is approved by the officers of the roads, who have generally characterized it as a very good thing. Copies can be secured by applying to the Railroad Young Men's Christian Association at Detroit Junction, Mich., free of charge.

Took His Own Dividend.

The only stockholder who ever received any dividend from the old Farmington (Conn.) Canal has just died. The President told him that there was no dividend and no prospect of any, and jestingly advised him to go home and mow the tow-path. He did so, taking a 20 per cent. dividend in hay from the eight miles of unused tow-path, and this he went on doing with perfect complacency thereafter.

Youthful Train Wreckers.

A number of small boys placed a railroad tie across the track at Irondequoit, N. Y., on Saturday afternoon, Sept. 26, and then watched, from behind a hedge, its effect on a coming passenger train. Fortunately the train was going at a speed of only 12 miles an hour, and the log, being slightly oblique, was pushed aside; otherwise the train, which was filled with people, might have been thrown down an embankment. Two of the boys, Louis Weiser and Charles Hoehn, each about 9 years of age, were arrested.

Railroad Young Men's Christian Association.

The report of the Association at Kansas City, Mo., for the year ending Aug. 31 last, shows a total attendance at the rooms during that period of 31,093, of whom 26,000 were readers and visitors. The religious and other meetings were well attended. The officers for the ensuing year are: President, E. J. Sanford, Chicago & Alton; Vice-President, H. H. Bidwell, Kansas City; Fort Scott & Gulf; Recording Secretary, S. O. Jerome. Mr. H. W. Reed presided and delivered an address at the annual meeting, Sept. 8.

TECHNICAL.

Locomotive Building.

The Philadelphia & Reading shops in Reading, Pa., are building 6 very heavy engines with 10 driving wheels connected, to be used on heavy grades and inclines. These engines will have 10 drivers and a two-wheel truck, and will have the Wootten fire-box.

The Cooke Locomotive Works in Paterson, N. J., are building 2 freight engines for the Fort Worth & Denver City road.

The Baldwin Locomotive Works, in Philadelphia, have just completed 8 ten-wheel freight engines for the Gulf, Colorado & Santa Fe road. They have also completed 2 Mogul freight engines for the Charleston and Savannah road.

The Taunton Locomotive Works, in Taunton, Mass., have just completed a passenger engine for the Seaboard & Roanoke road, and are building a ten-wheel freight engine with 18 by 26 in. cylinders for the Little Rock & Fort Smith road.

The Roanoke Machine Works at Roanoke, Va., are to build seven locomotives for the Norfolk & Western road.

The Car Shops.

The Jackson & Sharp Co. in Wilmington, Del., has recently shipped 6 narrow-gauge passenger cars to the Jacksonville & Atlantic road in Florida, 2 standard gauge passenger cars to the Kansas City & Southern road, and a passenger car and a combination baggage and passenger car to the Bangor & Portland road. The shops are very busy at this time.

The Missouri Car & Foundry Co. in St. Louis last week delivered 50 box and 60 flat cars to the Gulf, Colorado & Santa Fe road.

The Pullman shops in Pullman, Ill., are building 50 stock cars for the Fort Worth & Denver City road.

The shops of Morgan's Louisiana & Texas road in Algiers, La., are building 35 box cars for the road.

The Richmond & Danville shops in Manchester, Va., are building several new passenger cars for the road.

Harris & Sons in St. John, N. B., are building 12 cabooses for the Intercolonial road.

Bridge Notes.

Bids will be received until Oct. 23 for the construction of a bridge across the St. Lawrence River near Lachine, for the Atlantic & Northwest Railway of Canada. The contract will also include the approaches. Plans and specifications can be seen and further information obtained at the office of the Chief Engineer of the Canadian Pacific road in Montreal. This contract will necessarily be a large one, involving a considerable amount of money.

The California Bridge Co. in San Francisco is building a highway bridge across the Stanislaus River at Ripon, Cal. The bridge will be of iron, and 1,000 ft. long over all.

The Syracuse Bridge Co. has been incorporated at Syracuse, Kan., for the purpose of building highway bridges.

Among the contracts which the Union Bridge Co. is now filling, and of which no mention has heretofore been made, are a bridge over the Arkansas River at Tulsa, Ind. Ter., for the Atlantic & Pacific road, with 9 spans of 155 ft. each; 3 bridges for the Chicago, Burlington & Northern road, one over the Chippewa River, with 7 fixed spans of 140 ft. each and a draw-span 320 ft.; one over the Wisconsin River with 6 spans of 180 ft. each, 4 of 120 ft. each, and a draw-span 240 ft., and one over the St. Croix River with 1 fixed span of 153 ft. and a draw-span 360 ft. The company is also doing considerable work for the Maine Central, including a bridge of 4 spans of 175 ft. each, over the Kennebec River, at Augusta, Me., and several smaller bridges. Other bridges in progress include one over the Muskingum River, with 4 spans of 150 ft. each, for the Pittsburgh, Cincinnati & St. Louis, and one over the Wabash River, with 5 spans of 150 ft. each, for the Chicago, St. Louis & Pittsburgh. The company has orders on hand from the Illinois Central, the Denver & Rio Grande, the New York Central, the Delaware & Hudson Canal Co., the Chicago, Milwaukee & St. Paul, and several other roads.

Iron and Steel.

Howard Furnace in Centre County, Pa., will soon go into blast. This is a charcoal furnace.

Falling Spring Furnace in Franklin County, Pa., has recently changed hands, and will go into blast as soon as necessary repairs can be completed.

Lock Ridge Furnace at Albutis, Pa., has just gone into blast, after standing idle for a long time.

Mary Furnace at Lowellville, O., has gone into blast, after a short stoppage.

Ashland Furnace at Ashland, Ky., has just been supplied with a new blowing engine.

The Roane Iron Co. at Rockwood, Tenn., is rebuilding one of its blast furnaces.

The Vulcan Steel Works in St. Louis have been started up under control of the Western Steel Co., the new owner of the works.

National Furnace at De Pere, Wis., is being put in order, and will be started up as soon as the repairs are finished.

Manufacturing and Business.

The Manville Covering Co., recently organized in Mil-

waukee, Wis., has now a large and well-equipped factory for the manufacture of coverings for boilers, steam pipes, etc.

The Hilliard Car Coupling Co. has been incorporated in Kansas City, Mo., with \$600,000 capital stock, for the purpose of manufacturing car couplers.

The Mineral Wool Co. is rebuilding its works at Stanhope, N. J., and will resume operations there as soon as necessary repairs are finished.

The Whittier Machine Co., in Boston, recently shipped two steel tubular boilers to Victoria, B. C.

The Rail Market.

Steel Rails.—Sales of several small lots are reported, but no large orders are under discussion at present. The makers are holding prices stiffly at \$30 per ton at mill, and are apparently at present in a condition to maintain prices, as nearly all of them have work for some time to come.

Rail Fastenings.—Spikes are still quoted at 1.90 cents per lb. in Pittsburgh; track-bolts at 2.40@2.90 and splice-bars at 1.60@1.75. An increased demand is reported, and more sales than for some time past.

Old Rails.—Not many sales of old iron rails are reported, although a better demand is expected. They are somewhat scarce at present, and are quoted at \$17@17.50 per ton at tide-water. Old steel rails are quoted at \$17@18 per ton in Pittsburgh, with an increased demand and very few in the market.

British Rail Exports.

For the month of August and the eight months then ending, the exports of rails from Great Britain to the United States and to all countries is reported as follows by the British Board of Trade, in tons of 2,240 lbs.:

	1883.	1884.	1885.	1883.	1884.	1885.
To United States:						
Iron rails.....	120	.....	.....	2,519	.....	.....
Steel rails.....	9,391	1,282	.....	44,794	16,118	4,843
Total.....	9,511	1,282	.....	47,313	16,118	4,843
To all countries:						
Iron rails.....	1,532	519	1,710	20,102	9,323	9,773
Steel rails.....	60,155	36,400	55,620	516,179	386,074	358,011
Total.....	61,687	36,919	57,330	536,281	395,397	367,784

August is the third month in succession that there have been no exports to the United States. The exports to other countries were 55 per cent. more than last year, 10 per cent. more than in 1883 in August, but for the eight months they were 5 per cent. less than last year and 26 per cent. less than in 1883. Three times as much went to India in August as to any other country, and 31 per cent. of the total British exports for the eight months have gone there, Australia and Canada standing next, each with about half as much.

New England Railroad Club.

The first meeting of the season was held on the evening of Sept. 23, at the rooms in the Boston & Albany station, in Boston, Mr. J. W. Marden, President, in the chair. On motion of Mr. J. N. Lauder, a committee, consisting of Messrs. Lauder, F. D. Adams and E. E. Pratt, was appointed on the death of Mr. George N. Boyden.

The subject for discussion was "The Locomotive: Comparative Merits of the American and English." Mr. Lauder opened the debate by saying that he had no doubt but the English locomotive for the lighter traffic, longer curves and smoother track on which they are used, are really better than the American engines; but he thought the latter are really better than the English engines, as they can be run on the English roads, and the English engines cannot be run on American roads.

Mr. George Richards, Master Mechanic of the Boston & Providence Railroad, who has lately made a tour of the continent, was called upon to give facts gathered on his trip. He gave a rapid résumé of the points of difference between American roads, tracks, cars, engines, stations, etc., and English, French, German and Swiss roads.

Incidentally to the discussion that followed, the usefulness of the headlight was touched upon, Mr. Lauder and Mr. Richards agreeing that the presence of the headlight is more dangerous than its absence would be, as the engineer can see farther without it, and it also prevents seeing the signals plainly.

The committee on the death of Mr. Boyden reported as follows:

"The members of the New England Railroad Club have received with profound regret the announcement of the death of Mr. George E. Boyden, at his home in Readville, on Sept. 8. It is fitting that mention should be made of the decease of one of our most worthy as well as one of the most kind-hearted and most generous members of our Association. His long service as Master Mechanic of the New York & New England Railroad has made him widely known, as well as highly regarded among us. It is therefore resolved, That the members of the New England Railroad Club will always gratefully bear in mind the noble individual qualities which characterized the man, and cherish with gratitude the long friendship which has existed between us in all our various relations, and they respectfully tender to the members of his family their sympathy in the great loss sustained by them.

Resolved, That a copy of these resolutions be transmitted to the bereaved family and the same be entered upon the records of this club."

The report was adopted unanimously, and the meeting adjourned.

A Steel Steamboat for the Mississippi.

A steel steamboat 300 ft. long is to be built in Dubuque, Ia., for the "Diamond Jo," line between St. Paul and St. Louis. It will be the first steel boat of large size on the Upper Mississippi, and will be followed by four others.

A New Departure in the Metallurgy of Iron.

A correspondent writes thus to the London Engineer: "Before long not only will wrought iron be made of superior quality and in large quantities by a direct and economical process, but steel will also be made in an equally direct manner, without having to pass through the intermediate range of cast iron, and that in large quantities and of quality equal to that by the Siemens-Martin process, and at about half the cost. By a different method of producing cast iron and slightly altering the condition of the blast furnace, pig iron will be made with less than 2,000 lbs. of soft coal to the ton of pig metal produced. The theoretical amount of carbon necessary to make a ton of pig metal is considerably under 900 lbs. All that is necessary to accomplish the above results is to economically perform all the necessary operations in the blast furnace itself, thereby getting the maximum effect from the coal where that is required.

During the late meeting of the Iron & Steel Institute at Glasgow we had the opportunity of seeing excellent specimens of wrought iron, steel and cast iron, all of which were made by the processes of which we have given an outline. The processes have not yet been carried out on the scale of actual working, but the simplicity and rational sequence of the processes recommended themselves to the judgment, being backed up by the testimony of practical iron-masters, who stated that the conditions mentioned actually did exist in the

usual blast furnace practice. The only doubt expressed was as to the possibility of stopping the operation at the critical point; but all admitted that if this could be accomplished there was a vast future in store for the new method, which is on the point of being tried on a commercial scale.

Engineers' Steel Castings.

Mr. B. F. McCallem delivered an address on the best manner of producing trustworthy engineers' steel castings at a meeting of the South Staffordshire Iron and Steel Works Managers' Institute. He called attention to the great economies in fuel which had resulted from the introduction of the crucible gas furnace, and to the vital importance of possessing molds which were at once extremely refractory and also porous. It was extremely difficult to make a true steel casting. A good casting should contain about 0.3 carbon, 0.3 silica and from 0.6 to 1 per cent. of manganese. Such a casting, if free from other impurities, ought to possess a strength of between 30 and 40 tons, and an 8-in. specimen should give an elongation of 20 per cent., or even more. The difficulties of mixing caused many makers to resort to the addition of hematite pig. In the discussion which followed, it was generally agreed that the best castings contained the most blow-holes, and cases were mentioned in which machine tooled wheels which had broken after two months' use presented a very solid appearance, whereas wheels which had given way after twelve months' use were quite porous. A celebrated inspecting engineer from London had recently visited one Staffordshire works, and had expressed his greater satisfaction at the irregular appearance of some of the castings inspected than as though there had been no blow-holes. "Directly I see a steel casting which does not present to the ordinary eye an irregular appearance, I begin to be suspicious," he had remarked. Mr. McCallem accepts, with some slight qualification, the verdict of the Institute as to the value of porosity in castings, and as a test this authority reminds them that a good steel casting will bend through a right angle before it will break.

Electric Train Signals.

The Boston & Maine Railroad Co. has just contracted with the Jenkins Electric Signal Co. to equip all its passenger cars and locomotives, of both divisions, with the Jenkins signal, which supersedes the bell rope, and which gives an automatic alarm in case the train parts. The number of engines is 261 and cars about 475. Manager Furber carefully investigated for several weeks before laying the matter before the directors, and conferred with Superintendent Polson of the Boston & Providence in regard to the working of the signal on his road. The Maine Central will now equip with it, and the Central Vermont, the Passumpsic, the South-eastern and the Grand Trunk are considering it. The work of equipping the through trains between Boston and Montreal over the Boston & Lowell and these other roads is nearly completed. All the passenger trains of the Concord & Portsmouth have taken it, and the Milwaukee & Northern has adopted it. The Erie has tried it, and Superintendent Thomas gives it a high indorsement. Considering that it was introduced only last May, this signal is meeting with remarkable success. Dr. Moore, of Manchester, N. H., is President of the company.—*Boston Advertiser*, Sept. 30.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

Chicago & Eastern Illinois, annual meeting, at the office in Chicago, Oct. 6, at noon. Transfer books close Sept. 25.

Evansville & Terre Haute, annual meeting, at the office in Evansville, Ind., Oct. 19.

Lake Erie & Western, annual meeting, in Bloomington, Ill., Oct. 14.

Louisville & Nashville, annual meeting, at the office in Louisville, Ky., Oct. 7, at noon.

Minneapolis & St. Louis, annual meeting, in Minneapolis, Minn., Oct. 6. Transfer books closed Sept. 5.

New York, Lake Erie & Western, annual meeting, at the office in New York, Nov. 24. The register for voting bondholders is open for corrections from Sept. 25 to Oct. 24.

Ohio & Mississippi, annual meeting, at the office in Cincinnati, Oct. 8. Transfer books closed Sept. 12.

Western Union Telegraph Co., annual meeting, at the office in New York, Oct. 14.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Chicago, Milwaukee & St. Paul, 3½ per cent., semi-annual, on the preferred stock, and 2½ per cent. on the common stock, payable Oct. 30, to stockholders of record on Sept. 30. The April dividend was 3½ per cent. on preferred and 1½ per cent. on common stock.

Delaware, Lackawanna & Western, 1½ per cent., quarterly, payable Oct. 30, to stockholders of record on Sept. 30. This company reduces its dividend from 2 to 1½ per cent.

European & North American (leased to Maine Central), 2½ per cent., semi-annual, payable Oct. 5.

New York Central & Hudson River, 0½ per cent., quarterly, payable Oct. 15, to stockholders of record on Sept. 30.

Pittsburgh, Fort Wayne & Chicago (leased to Pennsylvania Co.), 1½ per cent., quarterly, payable on special stock Oct. 1; on regular stock Oct. 6.

Raleigh & Gaston, 3 per cent., yearly, payable Oct. 1, to stockholders of record Sept. 25.

St. Paul, Minneapolis & Manitoba, 1½ per cent., quarterly, payable Nov. 2.

United New Jersey (leased to Pennsylvania Railroad Co.), 2½ per cent., quarterly, payable Oct. 10.

Vermont & Massachusetts (leased to Fitchburg), 3 per cent., semi-annual, payable Oct. 7.

Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be as follows:

The *General Time Convention* will meet at the Grand Pacific Hotel, in Chicago, on Thursday, Oct. 8.

The *Southern Time Convention* will meet at the National Railway Exchange, No. 46 Bond street, New York, on Wednesday, Oct. 14.

The *Roadmasters' Association* of America will hold its annual convention in Chicago, beginning on Wednesday, Oct. 14.

The *New England Roadmasters' Association* will hold its annual meeting at the Hotel Warwick in Springfield, Mass., beginning at 2 p. m., on Wednesday, Oct. 14.

The *Association of American Railroad Superintendents* will hold its semi-annual meeting at No. 46 Bond street, New York, at 10 a. m., on Thursday, Oct. 15.

The *Master Car-Builders' Club* will hold its first meeting for the season at the rooms, No. 113 Liberty street, New York, on Thursday, Oct. 15.

The *American Street Railway Association* will hold its annual convention at the Southern Hotel in St. Louis on Wednesday, Oct. 21.

The *Central Club of Car Accountants* will hold its next meeting in Columbus, O., on Wednesday, Nov. 18.

Brotherhood of Locomotive Firemen.

The annual meeting of the Brotherhood closed in Philadelphia, Sept. 29. The business sessions were private, but it is understood that all questions brought up were satisfactorily disposed of, and that the meeting was a very successful one.

Master Car-Builders' Club.

A business and social meeting of the club will be held in the rooms, No. 113 Liberty street, New York, on Thursday, Oct. 15 next, at 8 p. m., to make arrangements for the series of meetings for the coming winter. All persons interested are invited to be present. Messrs. L. Garey, Willis Davis and C. A. Smith are the committee in charge.

Central Association of Railroad Superintendents.

The annual meeting of the Central Association of Railroad Superintendents was held in Fort Wayne, Ind., Sept. 23. The meeting was a purely social one, no business being transacted, and at its close the gentlemen present left for Detroit on an excursion.

The following members were in attendance: T. M. Fish, Detroit, Lansing & Northern; D. S. Sutherland, J. B. Morford and W. A. Vaughn, Michigan Central; W. H. Caniff, M. E. Wattles, T. J. Charlesworth, Lake Shore & Michigan Southern; W. J. Morgan, Detroit, Grand Haven & Milwaukee; W. E. Waugh, Grand Trunk; F. H. Britton, Baltimore & Ohio; G. M. Stevens, Wabash; W. F. Stark, Cincinnati, Hamilton & Dayton; C. C. F. Bent, Louisville, New Albany & Chicago; Charles Watts, Panhandle; W. W. Worthington, Fort Wayne, Louisville & Cincinnati; J. M. Metheany and P. S. O'Rourke, Grand Rapids & Indiana.

New England Roadmasters' Association.

The following circular has been issued by the Executive Committee of this Association:

"You are hereby notified and invited to attend the third annual meeting of our Association, to be held at the Hotel Warwick, Springfield, Mass., Oct. 14 and 15, 1885. Meeting will be called at 2 p. m. Oct. 14, and with proper intermissions there will be work done until adjournment on evening of Oct. 15:

"After the regular annual business of the Association, viz., reading of the minutes of last meeting; enrollment of new members; reading communications; election of officers; report of committees; unfinished and miscellaneous business, there will be discussed the following questions:

"*Switches: Best for Safety and Economy of Track.*—Mr. A. C. Stevens will open the discussion.

"*Railroad Ties.*—Mr. A. C. Beane will open the discussion.

"*Ballast.*—Mr. J. S. Lane will open the discussion.

"*Rail Bender, Track Drill and Other Road Tools.*—Mr. P. A. Eaton will open the discussion.

"*Nut Locks: Merits of Different Kinds as Proved by Trial.*—Mr. R. Hyland will open the discussion.

"*Economy of Labor and Material in Maintenance of Track.*—Mr. J. W. Shanks will open the discussion.

"Review of previous year's discussion of Frogs, Joints, Rails, etc.

"To make our annual meetings interesting and profitable to all, each member is asked to present to the meeting his ideas on these questions."

The Executive Committee consists of J. S. Lane, New York, New Haven & Hartford; J. R. Patch, Connecticut River; A. C. Stevens, Boston & Maine; A. C. Beane, Connecticut Valley, and W. F. Ellis, Providence & Worcester. Mr. W. F. Ellis is Secretary, and has his office at Woonsocket, Rhode Island.

ELECTIONS AND APPOINTMENTS.

Boston & Lowell.—Mr. George E. Shepard is appointed Purchasing Agent in place of Mr. F. H. Nourse, resigned.

Chicago, St. Louis & Pittsburgh.—Mr. James McCrea has been appointed General Manager of this company's lines, with office in Pittsburgh. Mr. John M. Miller has been chosen General Superintendent of the company's lines, with office in Columbus, O. Mr. Stephen W. White has been chosen Assistant Secretary, with office in Philadelphia.

Cincinnati, Georgetown & Portsmouth.—This company has elected directors as follows: M. E. Ingalls, Alexander McDonald, Ralph Peters, Henry Roelker, Orland Smith. The new board elected M. E. Ingalls President; Ralph Peters, Vice-President; Henry Roelker, Secretary and Treasurer.

Eastern Heights.—The directors of this new company are William Carr, J. W. Brown, T. H. Phelps, T. Wightman, James A. Spier, George W. Guthrie, George R. Stewart, W. L. Vankirk and Frederick G. Hay, all of Pittsburg.

East Georgia & Florida.—Mr. C. P. Goodyear is President and H. S. Morse General Manager of this new company, with office in Jesup, Georgia.

Eel River & Eureka.—Mr. R. Porter is Secretary, with office at Eureka, California.

Illinois Midland.—The office of General Traffic Manager A. E. Shrader has been removed from Terre Haute, Ind., to Decatur, Ill.

Kansas, Nebraska & Dakota.—The following have been elected officers of this new company: President, John Francis, Topeka; Vice-President, John Keller, Lancaster, Pa.; Treasurer, Alexander McGaw, Philadelphia; Secretary, H. W. Bush, Lancaster; Chief Engineer, H. R. M. Whitman, Philadelphia; General Attorney, A. A. Harris, Fort Scott, Kansas.

Kentucky Central.—Mr. S. R. Tuggle has been appointed Master Mechanic. He was recently Division Master Mechanic on the Chesapeake & Ohio.

Louisville, Evansville & St. Louis.—Mr. L. S. Parsons has been appointed General Freight Agent. Mr. J. S. Clark, heretofore General Freight and Passenger Agent, will hereafter be General Passenger Agent only.

New York, Lake Erie & Western.—The following circular from Freight Traffic Manager George H. Vaillant is dated Sept. 28:

"Mr. John S. Hammond is hereby appointed General Freight Agent of the lines of this company east of Buffalo and Salamanca, with headquarters at New York, vice Edward Foley, transferred. Mr. Edward Foley is hereby appointed General Agent in charge of the domestic and foreign east-bound traffic at New York; all communications relative to export rates should be addressed to him, at No. 4 Broadway. The office of General Live Stock Agent is abolished. Mr. George F. Geagan is hereby appointed Live Stock Agent, with headquarters at No. 187 West street, New York. Mr. H. B. Chamberlain is hereby appointed Chief Clerk of Freight Claim Office. All communications relative to claims for overcharges and loss or damage on freight (except coal) and live stock should be addressed to him at No. 21 Cortlandt street, New York. These appointments to take effect Oct. 1, 1885."

The announcement recently made that Mr. Foley had re-

signed was not correct. As will be seen above, he has not resigned, but is transferred to other duties in the department where he has served so long.

Pennsylvania Company.—At a meeting of the board in Philadelphia, Sept. 25, Mr. James McCrea was chosen General Manager of all the lines operated by this company, with office in Pittsburgh. Mr. W. A. Baldwin will remain, as heretofore, Manager of the company's lines.

Pittsburgh, Cincinnati & St. Louis.—At a meeting of the board held in Philadelphia, Sept. 25, Mr. James McCrea was chosen General Manager of this company, with office in Pittsburgh. Mr. John F. Miller was chosen General Superintendent of the company's lines, with office in Columbus, Ohio.

Pullman's Palace Car Co.—Mr. J. W. Stockton has been appointed Assistant Superintendent for the New England District, with office in Boston.

St. Johnsbury & Lake Champlain.—The new board has elected officers as follows: President, Horace Fairbanks; Vice-Presidents, Franklin Fairbanks; Secretary and Treasurer, George W. Hendee; Executive Committee, Edwin Morey, E. Powell Mason, C. S. Mellen.

Topeka, Hiawatha & Chicago.—The office of this new company is in Topeka, Kan.; the officers of the company are: Thomas A. Osborne, President; John Francis, Treasurer; D. Wilder, Secretary.

PERSONAL.

—It is reported that Mr. George Olds has resigned his position as General Traffic Manager of the Missouri Pacific road for the purpose of accepting a position on the Canadian Pacific.

—Mr. Franklin H. Nourse has resigned his position as Purchasing Agent of the Boston & Lowell Railroad. Mr. Nourse has been for many years in the service of the company in various capacities.

—Mr. Arthur S. Hughes, for a number of years General Manager of the San Francisco & North Pacific Coast road, died in San Francisco, Sept. 12. He had been connected with the road for a number of years in various capacities.

—Mr. George S. Skilton, General Superintendent of the Sinaloa & Durango road in Mexico, sailed recently from Altata, Mexico, for Guaymas. It is uncertain whether he will return, as there is a possibility that the road may be abandoned for the present.

—Mr. Thomas P. Barry has resigned his position as General Passenger Agent of the Cincinnati, Washington & Baltimore road. It is stated by authority that certain rumors, which have been current, affecting Mr. Barry's integrity, are without foundation, and that his honesty has never been called in question by the company.

—Mr. Peter Townsend, who died in New York, Sept. 26, aged 83 years, was for many years Manager of the Sterling Mountain Railroad Co. and was a director of the company up to the time of his death. He was for many years Manager and one of the largest owners of the Sterling Iron Co., whose works the Sterling Mountain Railroad connects with the Erie road.

—Hon. John Pope, just appointed Minister of Railroads of the Dominion of Canada, is the chief promoter of the International road across northern Maine from Lake Umbagog to Moosehead Lake and Mattawamkeag, at which places it connects with the Bangor & Piscataquis and Maine Central railroads. Mr. Pope has been Acting Minister of Railroads for a long time.

—Dr. Garrett B. Linderman died at his residence in South Bethlehem, Pa., Sept. 28, after a long illness. Dr. Linderman was for a number of years Superintendent of the Bethlehem Iron Co., and was also for a long time a director of the Lehigh Valley Railroad Co. He had been almost all his life interested in mining and iron manufacturing enterprises in Pennsylvania and was a high authority on mining and meteorological questions.

—Mr. Benjamin E. Smith, formerly a well-known railroad contractor and manager, was formally adjudged insane by the court in Columbus, O., Sept. 29, and was sent to an insane asylum. Mr. Smith lived in Columbus for many years and was largely engaged in railroad building in Ohio, Indiana and Illinois. He was for some time President of the Columbus, Chicago & Indiana Central road, and was a director in a number of other companies. Mr. Smith withdrew somewhat from railroad work several years ago, but has been engaged in several large operations in New York and vicinity. He built the Manhattan Beach Hotel and subsequently was concerned in the building of a very large hotel at Rockaway which proved a disastrous failure. He has been in failing health for some time, and it thought that his heavy losses in connection with the Rockaway Beach Hotel had affected his mind, which was already in a disturbed condition.

—Major Zenas C. Priest, Superintendent of the Middle Division of the New York Central & Hudson River Railroad, will on Oct. 18 complete 50 years of service with that corporation. Sept. 30 the directors caused a minute to be entered upon their records stating this fact, and also saying: "During the whole of that period, in every position he has occupied, he has merited and received the full confidence of the company. Springing from the ranks and promoted steadily to higher trusts, his work and life illustrate the value and appreciation which belong to and attend duty always faithfully and conscientiously performed. He has become in this half-century a part of the company which from small beginnings now traverses the state from the sea to the lakes, and by its connections crosses the continent. The directors desire to mark the termination of Major Priest's 50 years with the New York Central by an entry upon the records which shall preserve and perpetuate the event, and as a body and individually extend to him their cordial congratulations upon his hale and vigorous 80 years, and best wishes for many more years of health, happiness, and usefulness."

TRAFFIC AND EARNINGS.

Coal.

Coal tonnages for the week ending Sept. 19 are reported as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Anthracite.....	772,619	837,851	D. 65,232	7.8
Eastern bituminous.....	177,297	198,485	D. 21,188	10.7
Coke.....	47,338	42,428	I. 4,910	11.6

A continued improvement in the anthracite trade is reported. The Reading has advanced prices for October, and several of the other companies have followed.

Bituminous trade at Tidewater is more active, but prices are still held down by the sharp competition.

Coke tonnage shows a slight improvement, and a somewhat better demand is reported.

Pennsylvania Railroad coal tonnage for the week ending Sept. 19 was:

Line of road....	Coal.	Coke.	Total.	1884.
From other lines.....	146,932	47,338	194,270	179,090
	94,913	904	95,817	79,611

Total..... 241,845 48,242 290,087 258,701
Year to Sept. 19, 7,821,801 1,838,201 9,660,002 9,483,469
Increase for the week, 31,886 tons, or 12.1 per cent.; increase for the year, 176,533 tons, or 1.9 per cent.

Pennsylvania Railroad coal tonnage for the week ending Sept. 26 was:

Line of road....	Coal.	Coke.	Total.	1884.
From other lines.....	143,776	42,168	185,942	172,817
	92,295	699	92,994	89,399

Total..... 236,071 42,865 278,936 262,216
Year to Sept. 26, 8,057,872 1,881,066 9,938,938 9,793,605
Increase for the week, 16,720 tons, or 6.4 per cent.; increase for the year, 145,333 tons, or 1.5 per cent.

Cumberland coal shipments for the week ending Sept. 26 were 62,192 tons. Total to Sept. 26 this year, 2,019,852; last year, 2,080,722; decrease, 60,870 tons, or 2.9 per cent.

Shipments over the Norfolk & Western road from the mines at Pocahontas, Va., for the eight months to Aug. 31 were 314,847 tons. Shipments from the Flat Top mines were 86,412 tons, making a total of 401,259 tons.

Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

Eight months to Aug. 31:

	1885.	1884.	Inc. or Dec.	P. c.
Balt. & Potomac.....	\$882,198	\$788,694	I. \$93,504	9.3
Dan. & Norwalk.....	143,773	136,893	I. 6,880	5.0
E. Ten. Va. & G.....	2,519,008	2,455,039	I. 63,969	2.6
Net earnings.....	770,233	842,730	D. 72,497	8.6
Ft. Worth & Den.....	304,155	321,677	D. 17,522	5.4
Mem. & Charles.....	790,964	875,235	D. 84,271	9.6
Net earnings.....	97,827	245,142	D. 147,315	60.1
N. Y. & N. England.....	2,137,870	2,164,870	D. 27,000	1.3
Net earnings.....	702,063	438,650	I. 263,413	60.0
N. Y., Sus. & W.....	698,164	654,773	I. 43,391	6.6
Norfolk & West.....	1,697,701	1,660,735	I. 36,966	2.0
Net earnings.....	621,175	652,048	D. 31,773	5.0
Norfolk & Ohio.....	3,460,198	3,608,198	D. 147,999	4.1
Net earnings.....	1,324,723	1,338,488	D. 13,765	0.3
Ohio & Miss.....	2,365,152	2,458,585	D. 93,433	3.7
Phila. & Reading.....	18,292,802	20,285,468	D. 1,992,666	9.8
Net earnings.....	7,271,196	8,440,809	D. 1,169,613	13.8
West Jersey.....	892,937	929,409	D. 36,472	3.9
Net earnings.....	355,878	387,153	D. 31,275	8.1

Seven months to July 31:

	1885.	1884.	Inc. or Dec.	P. c.
Gal., Ha. & S. An.....	\$1,633,123	\$1,492,057	I. \$141,066	9.5
Net earnings.....	700,818	379,649	I. 321,169	150.4
Louisiana West.....	320,373	248,124	I. 72,249	29.2
Net earnings.....	169,451	93,522	I. 75,929	80.8
Morgan's La. & T.....	2,109,425	1,839,809	I. 269,616	14.7
Net earnings.....	618,546	518,131	I. 100,415	19.4
Tex. & N. Or'ns.....	532,782	466,005	I. 66,777	14.3
Net earnings.....	223,490	164,844	I. 58,655	35.5

Month of July:

	1885.	1884.	Inc. or Dec.	P. c.
Gal., H. & S. An.....	\$235,738	\$198,569	I. \$37,168	18.6
Net earnings.....	91,664	48,265	I. 43,399	90.6
Louisiana West.....	42,560	20,323	I. 22,237	109.6
Net earnings.....	20,217	1,365	I. 18,852	14.6
Mobile & O.....	110,470	129,323	D. 18,853	14.6
Net earnings.....	4,469	3,421	I. 7,895	23.2
Morgan's La. & T.....	250,419	203,227	I. 47,192	23.2
Net earnings.....	51,808	41,384	I. 10,424	25.4
South. Pacific.....	1,874,345	1,970,600	D. 96,255	4.9
Net earnings.....	1,138,475	985,882	I. 152,593	15.5
Tex. & N. Or'ns.....	83,434	64,627	I. 18,807	29.1
Net earnings.....	37,088	21,720	I. 15,368	73.5

Month of August:

	1885.	1884.	Inc. or Dec.	P. c.
Balt. & Potomac.....	\$102,851	\$103,915	D. \$1,064	1.0
Dan. & Norwalk.....	24,224	22,754	I. 1,470	6.4
E. Ten. Va. & G.....	328,496	312,723	I. 15,773	5.0
Net earnings.....	133,345	124,697	I. 8,648	6.8
Ft. Worth & Den.....	43,692	37,212	I. 6,480	17.5
Mem. & Charles.....	95,824	114,603	D. 18,779	16.4
Net earnings.....	31,944	44,276	D. 12,332	28.0
N. Y. & N. England.....	327,247	300,794	I. 26,453	8.8
Net earnings.....	151,720	99,625	I. 52,095	52.2
N. Y., Sus. & W.....	101,353	105,828	D. 4,475	4.2
Norfolk & West.....	250,404	228,408	I. 21,996	9.0
Net earnings.....	105,121	117,876	D. 12,755	11.0
Norfolk & Ohio.....	451,370	510,427	D. 59,057	11.6
Net earnings.....	180,485	218,889	D. 38,404	17.6
Ohio & Miss.....	344,938	380,176	D. 35,238	9.3
Phila. & Reading.....	2,940,749	3,299,014	D. 358,265	10.9
Net earnings.....	1,413,693	1,717,192	D. 303,499	17.6
West Jersey.....	212,638	232,367	D. 19,729	9.2
Net earnings.....	119,626	121,825	D. 2,199	1.8

Third week in September:

	1885.	1884.	Inc. or Dec.	P. c.
Canadian Pacific.....	\$180,000	\$137,000	I. \$43,000	31.4
Chicago & Alton.....	191,320	237,722	D. 46,402	19.5
Chi. & East. Ill.....	48,013	41,478	I. 6,535	15.9
Chi., Mil. & St. P.....	525,000	518,676	I. 6,324	1.2
Chi. & Nor-west.....	534,200	516,200	I. 18,000	3.5
C. St. P. M. & O.....	129,000	121,800	I. 7,200	5.9
C. I. St. L. & C.....	62,682	57,997	I. 4,685	8.2
Illinois Central.....	230,000	238,450	D. 8,450	3.6
Iowa lines.....	43,600	45,806	D. 2,206	4.8
Long Island.....	76,237	68,727	I. 7,510	10.8
Louisv. & Nash.....	267,696	269,930	D. 2,234	0.8
Roch. & Pitts.....	26,527	25,439	I. 1,088	4.3
St. L. & San F.....	97,700	97,533	I. 167	0.2

* Deficit.

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

Cotton.

Cotton movement for the week ending Sept. 25 is reported as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Interior markets.....	73,287	62,949	I. 10,338	16.4
Shipments.....	55,800	51,111	I. 4,689	9.2
Stock, Sept. 25.....	52,452	36,155	I. 16,297	45.2

	1885.	1884.	Inc. or Dec.	P. c.
Receipts.....	114,873	118,463	D. 3,590	3.0
Exports.....	40,826	31,914	I. 8,912	27.9
Stock, Sept. 25.....	241,740	225,565	I. 16,175	7.2

The total movement from plantations from Sept. 1 to Sept. 25 is estimated at 132,351 bales, against 130,301 for the corresponding period in 1884, and 155,631 in 1883.

Florida Through Lines.

The Cincinnati, New Orleans & Texas Pacific, the East Tennessee, Virginia & Georgia and the Savannah, Florida & Western companies have arranged to run through sleeping cars between Cincinnati and Jacksonville, Fla., through the winter. Arrangements have been made which will prevent missing connections in case of delays of trains. Both Pullman sleeping and Mann boudoir cars will be run on this line.

Joint Western Classification Committee.

The Joint Western Classification Committee will hold an adjourned meeting, Oct. 6, when further arguments will be presented by the advocates of the abolition of car-load rates. The Iowa Railroad Commissioners have been requested to attend the meeting.

Southern Railway & Steamship Association.

A meeting of this association was held in Atlanta, Ga., Sept. 23, for the purpose of settling rates on fertilizers for the present season; also of reaching some agreement by which

the Georgia Pacific road can be brought into the association. A schedule of rates on fertilizers was adopted without much discussion, but there was a discussion over the terms on which the Georgia Pacific should enter the association, and no result was reached, the proposition made by that road being referred to the Executive Committee.

Concealed Losses or Baggage.

The General Passenger Agents' Association, at its last meeting, adopted and ordered to be entered on its minutes the following resolutions, which had been passed and submitted by the General Baggage Agents' Association:

"Resolved, That it is the sense of this Association that claims for concealed losses should be pro-rated by lines in interest upon satisfactory evidence being furnished that such claims have been conscientiously and thoroughly investigated by all lines in interest, and upon the decision by legal departments that an action could probably be maintained by the claimant against the railroad company, and shall therefore be settled upon the best terms obtainable.

"Resolved, That if at any subsequent time it is definitely ascertained that any particular line is alone responsible for a loss which has been previously pro-rated, that line shall refund to the lines in interest the *pro rata* proportions which they have paid."

East-bound Rates.

Chicago dispatches state that the objections made by some of the roads to the proposed increase in rates have been removed, and that at a meeting held Sept. 28, it was agreed to restore rates on Oct. 1 to the basis of 20 cents per 100 lbs. for grain from Chicago to New York. There seems to be no doubt that the 20 cent rate will be generally supported, for a time at any rate.

Trunk Line Passenger Meeting.

A meeting was held at the Commissioner's office in New York, Sept. 30, all the lines being represented. After a discussion extending over the greater part of the day, the outlines of a plan were partially agreed upon, and were to be submitted to the Presidents at the following day's meeting. The plan provides for the settlement of the old outstanding balances and a restoration of passenger rates. It also provides for a money pool on first and second-class business, and a division of earnings as near as possible approximating the division of business. Following the formation of this new money pool, the emigrant pool is to be reconstructed and emigrant rates restored, with the proviso that all the outstanding cheap tickets shall be honored.

Fruit Shipments from California.

The shipment of fruit to the East still continues. The rate per passenger train for green fruit is \$600 for each car of 20,000 pounds. The rate by freight train is \$300 a car, but President Stanford, some time since, made a proposition to the fruit growers that if they would make up a train of 15 or 18 cars once, twice or three times a week, he would send it through to Chicago in the same time made by the recent tea trains, which was less than that taken by passenger trains. As yet the fruit growers have taken no action in the matter. Respecting the gross amount of green fruit shipped East by rail this season, the railroad reports are not yet quite complete. The shipments up to August this year aggregated 1,535 car-loads, and will probably reach 1,800 car-loads by the end of the season. Calculating 20,000 pounds to the car, this makes 36,000,000 pounds of green fruit for 1885, as against 12,000,000 pounds for the year 1884, and 500,000 pounds for the year 1875.—San Francisco Call.

RAILROAD LAW.

Not Interstate Commerce.

Railroad Commissioner Felker of Colorado has just rendered an important decision on the scope and meaning of the words "non-transferable" on a passage ticket. The ticket was sold at Omaha to Pueblo, over the Union Pacific to Denver, and the Denver & Rio Grande thence to Pueblo. One of the clauses of the agreement on the back of the ticket stated that it was not transferable. Commissioner Daniels asked the opinion of the Railroad Commissioner of Colorado as to whether that portion of the ticket entitling the holder (the purchaser) to passage from Denver to Pueblo would, under the laws of Colorado, be transferable, the ticket having been sold in the state of Nebraska, where the non-transferable agreement is legal and valid. The answer is as follows: "A purchased ticket in Nebraska over the Union Pacific to Denver, thence to Pueblo over the Denver & Rio Grande. When the passenger was landed at Denver the Union Pacific had performed its part of the contract, and no right of action could accrue to the passenger against that road for non-performance of contract by the Denver & Rio Grande. The contract is sought to be enforced in this state against the only party liable on the contract. The promise to transport was to be performed here. A refusal to perform that promise gives a right of action here and nowhere else. The laws of this state operate on that contract and fix the liability of the parties. The statute of this state renders that portion of the contract in relation to the non-transferability of this ticket inoperative and absolutely void. The ticket in question is valid in the hands of a bona fide purchaser and is good for one first-class fare over the Denver & Rio Grande from Denver to Pueblo if used in the time limited. The question of interstate commerce does not apply to this contract."

OLD AND NEW ROADS.

Americus, Preston & Lumpkin.—Track on this railroad is now laid from Americus, Ga., on the Central Railroad, westward to Preston, 20 miles, and a regular train has been put upon the road. Work is in progress on the extension of 18 miles from Preston to Americus.

Atlantic & Northwestern.—Work on this projected line was begun at Rutherfordton, N. C., Sept. 19, the breaking of ground being celebrated by speeches from officers of the company and a number of other gentlemen, and by a banquet and ball in the evening. The line as projected is to extend from Charleston, S. C., to the Ohio River, but the section under construction at present is from Shelby, N. C., to Cranberry. The work is under contract to the Massachusetts & Southern Construction Co., and is under charge of Mr. John F. Jones as Chief Engineer.

An offer has been received to build the road from Shelby, N. C., to Yorkville, S. C., for \$4,000 a mile in stock and \$1,000 per mile in cash, and a considerable amount in local subscriptions has been offered on this section.

Atlantic & Northwest of Canada.—Mr. George Stephen, President of this company, gives notice that bids will be received until Oct. 23 for the construction of a bridge and approaches crossing the St. Lawrence River near LaChapelle. Plans and specifications can be seen, and conditions, forms of tender and particulars obtained, at the Engineer's office of the Canadian Pacific Railway in Montreal.

Baltimore & Ohio and the Pennsylvania.—A report comes from Philadelphia this week to the effect that the Baltimore & Ohio and the Pennsylvania railroad companies have arrived at an agreement which will end existing differ-

ences between them. The reported settlement includes an agreement on the part of the Pennsylvania to carry all business of the Baltimore & Ohio between New York and Philadelphia at as favorable rates as its own business is done, the Baltimore & Ohio on its part agreeing not to extend its line beyond Philadelphia. The settlement, it was reported, also includes an agreement on the part of the Pennsylvania to give a certain amount of traffic to the Philadelphia & Reading, this being necessary, as the Baltimore & Ohio Co. has already made a traffic agreement with that company.

Since these reports have been in circulation, officers of both companies have denied their truth, and say that no such agreement between the companies has been, or is contemplated. It is, however, probable that negotiations are in progress and it is very possible that some settlement may be arrived at shortly, although it is of course impossible to say what its specific provisions may be.

Mr. Robert Garrett's position on trunk-line affairs is outlined in a statement made Sept. 30 to the Baltimore *American*, which is thought to be official. It states that no settlement of trunk-line differences is possible without the concurrence and co-operation of the Baltimore & Ohio, which long since positively determined to agree to no settlement or restoration of rates until absolute protection is assured to Baltimore & Ohio interests, not only in Baltimore, but in Philadelphia, New York and wherever it is interested. Regarding the rumor as to differential rates between New York and Baltimore, Mr. Garrett is quoted as saying that he will most positively refuse to accept the law of transportation from New York and will make any sacrifice of temporary prosperity for the ultimate benefit of his road.

Boston & Lowell.—On Sept. 28 this company opened its leased Massachusetts Central road to traffic as far as Hudson, 29 miles from Boston. Freight trains are run to Jefferson, 50 miles from Boston, and the road will be fully opened to that point shortly.

The Boston *Advertiser* of Sept. 30 says: "The officials of the Fitchburg Railroad were surprised when the Boston & Lowell opened the Massachusetts Central with a tariff of passenger rates about 25 per cent. lower than the Fitchburg's rates from competing points, and much lower for equal distances than those on the Boston & Lowell's main line. There was no conference between the officials of the competing roads prior to the making of the new tariff, which is said to be usual in time of peace, but a cut was made without notice, and the Fitchburg was of course compelled to meet it. Fear is now expressed in local railroad circles lest the Fitchburg shall retaliate by cutting rates from Nashua and all along up the Cheshire, Sullivan and Central Vermont, thus striking at an important source of the Boston & Lowell's revenue, and without cost to itself, for the Lowell would of course meet the cut and bring the passengers as it does now, but at an unremunerative rate."

Brunswick & Western.—The Atlanta (Ga.) *Constitution* of Sept. 27 says: "Some time since the Brunswick & Western was sold to the Central and the Savannah, Florida & Western companies conditionally. The condition was that the purchasers were to have 60 days to examine the titles, and if they were dissatisfied with the titles they had the right to declare the trade off. The examination was made, and before the 60 days expired the purchasers notified the owners of the B. & W. in New York that they were not satisfied with the titles, and declined to take the road. The New York parties were very much displeased, as they were anxious to get rid of the property, and they have filed a bill to compel specific performance on the contract."

Canadian Pacific.—An Ottawa dispatch says there is likely to be some trouble between this company and the Canadian government in relation to the British Columbia Division, which was built by the government and turned over to the company. The company claims that the construction of this road is very defective, and that a considerable expenditure will be needed to put it in proper condition for traffic, and claims that the government should allow it the amount which will have to be expended for this purpose.

Carnesville.—Track is now laid on this new road and the transportation of freight has been begun, although the road is not yet fully opened for business. It is about 9 miles long, extending from Carnesville in Franklin County, Ga., northward to West Bonersville on the Elberton Air Line road.

Carolina Central.—Work has been begun on the extension of this road from the old terminus at Shelby, N. C. northwest to Rutherfordton, a distance of 25 miles. This extension was surveyed some 25 years ago by the old Wilmington, Charlotte & Rutherford Co., and some grading was done on the line. The Carolina Central does not expect to stop at Rutherfordton, but has surveys in progress for a further extension from that place, through Western Carolina to the Cranberry iron mines in Mitchell County, some 50 miles. It is expected that this extension will be located and work begun about the time the road is completed to Rutherfordton.

Central Iowa.—The Boston *Advertiser* of Sept. 29 says: "It is reported that the Central Iowa Railway will shortly bring out an amended funding scheme, including the proposition to convert the branch line bonds, etc., into consols. It is the old scheme, with one more year's coupons included, and is brought forward because the old plan failed through the disinclination of some large holders to adopt it. The plan is to fund coupons due June 1, 1886, into consols at 75 cents, coupons of Dec. 1, 1886, June and December, 1887, and June, 1888, to be stamped as one-half paid. The interest per bond of \$1,000, due June 1, 1886, to be funded, is \$130, and one-half of two years' interest to June 1, 1888, is \$60, or \$190 per bond. The large holders have agreed to come into this arrangement."

Central Massachusetts.—The repairs on this road have been so far completed that the line was opened for passenger traffic between Hudson and Boston, 28 miles, Sept. 28, 5 passenger trains each way being put on by the Boston & Lowell Co., which operates the road. The repairs of the line between Hudson and Jefferson, 22 miles, are still in progress, and that section will not be opened for passenger travel until they are completed, although freight trains will be run through to Jefferson.

Central Pacific.—A Washington dispatch of Sept. 25 says: "The Secretary of the Treasury has issued a circular publishing for the information and guidance of all concerned the recent decision of Second Comptroller Maynard in regard to compensation due the Central Pacific Railroad Co. for services rendered for the government, and announcing in accordance therewith that department circular of June 27, 1883, and circular letter of Jan. 12, 1884, are revoked, and that all compensation now due, or which may hereafter become due, that railroad company, will be covered into the Treasury, and one-half thereof applied to the extinguishment of interest which has meanwhile accrued on the government subsidy bonds, and the other half credited to the sinking fund, as required by the Thurman act."

Central Transportation Co.—At the adjourned special meeting in Philadelphia, Sept. 28, it was resolved to con-

tinue the polls open for some time longer on the proposition before the stockholders to reduce the value of the capital stock from \$50 to \$38 per share, by the distribution of the company's assets to the stockholders to the amount of \$12 per share.

Central Vermont.—It will be remembered that at the time the compromise agreement was reached and the Consolidated Railroad Co. of Vermont was organized, Mr. J. R. Langdon of Montpelier, Vt., who had been for a number of years connected with the company and was a large holder of the so-called trust securities, declined for some reason to come into the agreement. It is now announced that Mr. Langdon has finally agreed to withdraw his objection and to convert his securities into those of the Consolidated Co., thus completing the reorganization. Mr. Langdon will also withdraw all pending suits in which he was concerned and will take a prominent part in the management of the new company.

It is also announced that a permanent traffic contract has been concluded with the Grand Trunk Co., by which all existing differences between the two companies are harmonized and the Central Vermont becomes the sole outlet of the Grand Trunk Co. for New England business.

Chicago, Milwaukee & St. Paul.—Argument was heard before the Circuit Court in Freeport, Ill., Sept. 24, in a suit begun by holders of bonds of the old Racine & Mississippi Railroad Co. to set aside the foreclosure and sale of the road. The road was sold nearly twenty years ago, and was bought by the Western Union Co., which afterward became part of the Milwaukee & St. Paul. Certain of the bondholders now claim to have discovered evidences of conspiracy and fraud in the foreclosure.

At the meeting of the directors in New York, Sept. 26, it was decided to make the half-yearly dividends 3½ per cent. on the preferred stock and 2½ on the common stock; making 7 per cent. on the preferred and 4 on the common stock for the year. The board also decided to issue \$5,000,000 in new preferred stock, which will be offered at par to the present holders, both of preferred and of common stock, who will have the right to subscribe for the new stock in the proportion of 1 share for each 10 shares of their present holdings. As the preferred stock is now selling at from 110 to 112, this privilege of subscription is equivalent to an extra dividend of about 1 per cent. The proceeds of this new stock are to be used in paying off the floating debt and in new construction. The floating debt is reported to be now about \$3,500,000. What the new construction surplus is to be applied to is not stated, but the presumption is that it will be used for the proposed extension to Kansas City.

Cleveland & Canton.—A meeting of the stockholders was to be held in Canton, O., Oct. 1, to vote on the agreement for the consolidation of this company and the Coshocton & Southern, which is the company organized for the extension of the road to Coshocton.

Cleveland, Columbus, Cincinnati & Indianapolis.—It is again reported that an agreement has been concluded under which the New York, Pennsylvania & Ohio business will pass over this road between Dayton and Cincinnati, instead of going over the Cincinnati, Hamilton & Dayton, as heretofore. Another report has it that there is still a possibility that this agreement will fall through.

Denver & Rio Grande Western.—President Palmer reports that a large number of bondholders have already assented to the proposed plan of settlement without foreclosure, and with the assents of foreign bondholders they soon hope to have a majority of the whole amount outstanding. There are many advantages in a reorganization without foreclosure, and as the interest on the bonds is not to be scaled down permanently, it is probable that the bondholders will assent to the proposed plan.

Dubuque & Sioux City.—The *Commercial and Financial Chronicle* says: "At the last annual meeting of this road President Jesup called attention to the fact that the existing lease of the road to Illinois Central will expire Oct. 1, 1887, unless that company elects at least six months prior to that time to renew the lease in perpetuity upon present terms. He also stated that Illinois Central had given him no intimation what course they intended to take. Also that if they should not renew the lease there were several other railroad companies with which favorable terms could undoubtedly be made for a lease, if desirable. He thought, however, that it might be more advantageous for the company to operate its lines under its own management. A railroad expert has made the following estimate of the company's necessities at expiration of the lease: Cost of new equipment, \$250,000; payment for construction and real estate, \$250,000; matured 5 per cent. notes, \$295,000; total, \$795,000. Provision can be made for contingency above referred to in the following manner: Reserve net earnings for the next two years, estimating the same at least 4 per cent. per annum, \$400,000; interest on above, accruing, \$15,000; notes, mortgages of Iowa Land & Loan Co., with interest to October, 1887, \$364,800; present value of lands and other assets Iowa Land & Loan Co., \$114,000; estimated reserve fund at termination of lease, \$398,800; in addition, Dubuque & Dakota Railroad Co. owed the Dubuque & Sioux City \$126,247. Should the board decide to adopt the above plan, the company will have no floating debt; first division of 100 miles will have no funded debt; second division of 36 miles, bonded debt of \$586,000. Bonds of second division now bear 7 per cent. interest, but at maturity in 1894 can probably be replaced by a 4 or 5 per cent. bond, and then only interest charges upon the whole 143 miles will be about \$26,000, or less than \$200 per mile. The board of directors resolved to increase the necessary fund (now amounting to over \$400,000, assets of Iowa Land & Loan Co.), already set apart for the purpose of independent operations; that, unless the present condition of affairs changes, no dividend be declared after this date for two years, and that net earnings of the company be reserved to be used for above purposes when required. Officers will apply the same to take up whole or a portion of \$295,000 indebtedness above referred to."

Eastern Heights.—This company has filed articles of incorporation to build a railroad from Fifth avenue and Ross street in Pittsburgh to Wilkensburg, a distance of about 7 miles. The intention is to build a rapid transit line for local traffic.

East Georgia & Florida.—This company has filed articles of incorporation for the purpose of building a railroad from Jesup, Ga., southward to a connection with the Florida Railway & Navigation Co.'s line at Harts Road, Fla. The road will be about 80 miles long, and its purpose is to make a direct connection between Jacksonville, Fla., and the East Tennessee, Virginia & Georgia line. The surveys have been completed as far as the St. Mary's River and work is to be begun very shortly.

East Tennessee, Virginia & Georgia.—The statement for August and the two months of the fiscal year from July 1 to Aug. 31 is as follows:

	1885.	1884.	1885.	1884.
Earnings	\$328,496	\$312,723	\$627,320	\$590,760
Expenses	105,151	188,036	362,647	375,902
Net earnings....	\$133,345	\$124,687	\$264,673	\$214,858

For the two months the gross earnings increased \$96,560, or 6.2 per cent., and the expenses decreased \$13,255, or 3.5 per cent., leaving a gain in net earnings of \$49,815, or 23.2 per cent.

The formal transfer of the controlling interest in the stock of the Memphis & Charleston Co. was made to the Central Trust Co., in New York, Sept. 24, by Calvin S. Brice, Samuel Thomas and associates, thus giving the control of the property to the East Tennessee, Virginia & Georgia Co. The stock will be held in trust for the consolidated bonds of the latter company. The means for the purchase of the block of stock came, it is understood, from the proceeds of the sale of \$2,000,000 of the first-mortgage bonds of the Knoxville & Ohio Railroad at par, the balance of the amount thus received being applied to the payment of \$800,000 of the floating debt of the East Tennessee road.

Gulf, Colorado & Santa Fe.—This company has agreed to extend its line to Coleman, Tex., that town having voted to give right of way, station grounds and a subsidy of \$20,000.

Illinois Central.—This company has let contracts for the grading and bridging of an extension of the Yazoo City branch of the Southern Division from Yazoo City, Miss., northward 70 miles up the Yazoo and Tallahatchee rivers. The contracts were let to 14 different parties and the work is to be done by June 1, 1886. This is the part of the proposed extension of the branch to Memphis.

Kansas City & Southwestern.—This company has given notice that its line will be opened for business on Oct. 1 from Beaumont, Kan., on the St. Louis & San Francisco road, to Winfield, 42 miles. A further extension of the line from Winfield to Arkansas City, 27 miles, is in progress and will, it is expected, be completed about the close of the year.

Kansas, Nebraska & Dakota.—This company has been organized to build a railroad from Topeka, Kan., southeast to Fort Scott, about 45 miles. A line from Topeka northward is also projected.

Louisiana Central.—A contract for the construction of this road has been let to Messrs. Rogers & Ballentine, of New Orleans. The road is to run from Lafayette, La., on Morgan's Louisiana & Texas road, eastward to Baton Rouge, a distance of 53 miles. The greater part of the line will run through the great Atchafalaya swamp, and a large part of it will have to be built on trestle work. A force of convicts is now employed in clearing the right of way. The greater part of the road will probably be built by convict labor.

Louisville, New Orleans & Texas.—Surveys are being made for a branch line from this road at Lola, Miss., to Glendale, which is on the Mississippi River, opposite Helena, Ark. The object of this branch is to make connections with the St. Louis, Iron Mountain & Southern road at Helena. This branch will complete a new through line between St. Louis and New Orleans.

Memphis & Charleston.—The statement for August and the two months of the fiscal year from July 1 to Aug. 31 is as follows:

	1885.	1884.	1885.	1884.
Earnings	\$95,824	\$114,663	\$179,640	\$220,134
Expenses	63,880	70,387	132,620	144,117
Net earnings....	\$31,944	\$44,276	\$47,020	\$76,017

For the two months the gross earnings decreased \$40,494, or 18.4 per cent., and the expenses \$11,497, or 8.0 per cent., leaving a decrease in net earnings of \$28,997, or 38.1 per cent.

The controlling interest in the company's stock has been transferred finally to the East Tennessee, Virginia & Georgia Co., as noted elsewhere.

Mexican Railroad Notes.—The Sinaloa & Durango road has been seriously damaged by wash-outs and the destruction of a bridge on the line, so that the running of trains between Altata and Culiacan has been suspended. General Superintendent Skilton has gone to Guaymas to confer with President Symon, when it will be decided whether the road shall be abandoned for the present, or repaired and again put in order for traffic.

The following notes are from the *Mexican Financier* of Sept. 19:

President Diaz, in his message, says regarding the railroads: "The operations under supervision of the Ministry of Public Works continue making slow but certain progress. Beginning with the railroads, I can state that the Mexican Construction Co. has finished 35 kilometers on the Morelia & Patzcuaro Branch, and that it is continuing its operations in order to reach the latter place. The Central Railway Co. finished 25 kilometers on the San Luis & Tampico Division, completing 165 from that port to Villa de Valles, a section already being operated."

"On the Yucatan line 16 kilometers have been finished from Campeche to Kalkin, and 4 on the Mérida line to the same point. The District Railroad Co. has finished the line from Atzacotzalco to Tlalneptan, which is to be operated by animal power, placing this last-named place in communication with this capital and with the other towns of the district which are touched by the company's lines."

"The circumstances of the Treasury have not permitted the continuation of the Tehuantepec Inter-oceanic Railway, but provision has been made for the conservation of the works so far constructed, and the operation of the track between Salina Cruz and San Gerónimo has been authorized."

"The railway companies known as the Tamaulipeco, that from Zacatecas to Frontera, the Meridional, and the Puerto Lobos & Frontera, not having complied with the requirements of their charters, the Executive has declared their respective concessions forfeited."

Minnesota & Northwestern.—This new road, extending from St. Paul, Minn., to Mena, was formally opened for traffic Sept. 20, when regular passenger trains were put on. The company has not succeeded in entering the Union Depot at St. Paul, in consequence of opposition made by the other railroads using the depot.

The road leaves St. Paul by a fine bridge over the Mississippi, 1,313 ft. long, and extends south by east, crossing at Hampton the Hastings & Dakota Division of the Milwaukee & St. Paul; at Randolph the Cannon Falls Division of the same road and the Central Division of the Minneapolis & St. Louis, and at Dodge Centre the Chicago & Northwestern. At Lyle the road connects with the Illinois Central, and arrangements have been made for the interchange of traffic with that road. The company is now building an extension of 20 miles, from Mena to Manley Junction, Ia., to connect with the Central Iowa road. The road has been thoroughly built, and is laid with steel rails. It is equipped with 12 locomotives, 18 passenger cars and 356 freight cars.

This length of the new road from St. Paul to Mena is 110½ miles. The distance from St. Paul to Chicago by this road and the Illinois Central is 482 miles. By the other routes between St. Paul and Chicago the distance is as follows: Chicago & Northwestern, by Elroy, 421; Chicago, Milwaukee & St. Paul, by La Crosse, 422; Wisconsin Central, by

Chippewa Falls, 438; Minneapolis & St. Louis and Rock Island, 531 miles.

Minneapolis, Sault Ste. Marie & Atlantic.—The grading of this road is now finished to a point 24 miles eastward from the late terminus at Bruce, Wis., and 70 miles from the western terminus at Turtle Lake. This is as far as the road will be built this season. The bridge over the Flambeau River is completed and track has been laid to Deer Tail, 5 miles east of the river and 14 miles from Bruce. It is expected that track will be laid to the end of the grade by the middle of next month, when regular trains will be put on.

Missouri, Iowa & Nebraska.—Receiver Thatcher, on Sept. 22, took possession of this road, which has hitherto been operated as part of the Wabash, St. Louis & Pacific system. The appointment of Mr. Thatcher was made in foreclosure proceedings begun by the trustees.

Mobile & Ohio.—The following statement shows the earnings for the fiscal year ending June 30 last:

	1884-85.	1883-84.	Inc. or Dec.	P. c.
Earnings.....	\$2,101,026	\$2,278,918	D. \$177,892	7.8
Expenses.....	1,576,186	1,547,468	I. 28,718	1.8
Net earnings.....	\$524,840	\$731,450	D. \$206,610	28.3
Per cent. of ex.....	75.0	67.9	I. 7.1	.....

The earnings last year were \$3,970 gross and \$998 net per mile, the net earnings being the lowest reported for several years.

The statement for July, the first month of the new fiscal year, is as follows:

	1885.	1884.	Decrease.	P. c.
Earnings.....	\$110,470	\$139,323	\$18,853	14.6
Expenses.....	114,934	125,892	10,958	8.7

Net, or deficit.....D. \$4,464 N. \$3,431 \$7,895 ..

July is usually a light month for earnings on this road, while it is also one in which there is generally a considerable expenditure for repairs.

New York, Chicago & St. Louis.—In Cleveland, O., Sept. 23, another large judgment was rendered against this company. The judgment was for \$416,000, on a note held by the Lake Shore & Michigan Southern Co.

In a cross-petition filed by Mr. Vanderbilt in the Central Trust Co. suit for foreclosure, the legality of the organization of the company is called in question. The cross-bill says that the company was not incorporated legally, being formed by the consolidation of five other corporations, at a time when none of them possessed any railroads; it was also formed by the consolidation of an Ohio corporation, with corporations from New York and Illinois, while the Ohio statute prohibits consolidation except with corporations of adjoining states. Other legal defects are charged which would make the present organization altogether void, and would consequently make the mortgages given by the company void and illegal. If this cross-bill should be sustained it will consequently deprive the bondholders of their lien upon the road, and the only thing which will remain for the courts to do will be to order the affairs of the corporation to be wound up and the property sold for the benefit of the creditors, and the bondholders in that case can only be considered as on the same footing with other creditors, and would have to take their proportion of the proceeds of the sale, whatever that might be. It is not at all certain, however, that the courts will take this view of the case. Mr. Vanderbilt's object in filing this cross-bill is not known, but it is broadly hinted that it is to frighten the bondholders into selling out at a low price.

New York & New England.—At a meeting held in Boston, Sept. 29, the directors voted to issue the \$2,000,000 preferred stock which was authorized some time ago. This stock is to be offered to present shareholders, who have the right to take one share of the preferred for each 10 shares of the common stock held. The proceeds of this stock are to be used in paying off the floating debt. Some of the creditors have signified their desire to take preferred stock for their claim, but the directors have considered it best to give the stockholders an opportunity of taking the new stock. The option of taking this stock will be open until Oct. 27.

The Receiver's statements give the earnings for August and the eleven months of the fiscal year from Sept. 1 to Aug. 31 as follows:

	August—	1884—	Eleven months—	1883-84—
Earnings.....	\$327,247	\$340,794	\$2,937,735	\$3,059,303
Expenses.....	173,527	211,169	2,010,401	2,588,744

Net earnings.....\$153,720 \$89,625 \$927,334 \$467,519

For the eleven months the gross earnings decreased \$118,528, or 3.8 per cent., and the expenses \$578,343, or 22.3 per cent., leaving a gain of \$459,815, or 98.3 per cent., in net earnings.

The sale of the rolling stock included in Series A of the car trust was held in Hartford, Ct., Sept. 24 and 25. Very few bidders were present, and the rolling stock was all bought in by Receiver Clark, acting as agent for the trustees under the second mortgage. This was in pursuance of the agreement under which the car trust certificates have nearly all been turned in and exchanged for second-mortgage bonds. The rolling stock sold brought in all \$469,580, or about 53 per cent. of the amount of the car trust certificates. Those holders of certificates who did not exchange them for the second-mortgage bonds will accordingly receive about this proportion of the amounts of their certificates in cash. The rolling stock purchased will remain on the road as the property of the company, subject, of course, to the lien of the second-mortgage bondholders.

New York & Sea Beach.—It is stated that this company has arranged for a settlement of its present financial difficulties. The stockholders have agreed to take \$200,000 in new bonds, the proceeds of which are to be used to pay off the floating debt and to make improvements at the Coney Island terminus of the road.

New York, West Shore & Buffalo.—The foreclosure suit came up again before the Supreme Court at Newburg, N. Y., Sept. 26, the time of the Court being devoted to the settlements of the provisions of the decree of foreclosure, as presented by the counsel. The Court fixed the upset price of the road at \$22,000,000. The sale will probably take place about the middle of November, the date to be fixed hereafter.

Considerable time was devoted to the matter of compensation of receivers, trustees and attorneys. The Receivers stated that they expected to receive 2½ per cent. of the amount of their receipts and disbursements, as fixed by law, but the counsel for the bondholders represented that, as the Receivers performed the offices of president and vice-president, the salaries of those officers would be about a fair compensation. The matter was not settled. The trustee, the United States Trust Co., asked \$250,000 as compensation for its services and \$100,000 for its counsel. This was strongly opposed by the counsel for the bondholders, who stated that the fee was excessive, and suggested that the trustee had better take the road. The fixing of compensation was taken under consideration by the Court.

It is announced that a settlement has been reached by Drexel, Morgan & Co. with the holders of the North River Construction Co. stock. The Receiver and officials of the

company decline to make the terms of the settlement public, but it is believed the stockholders will receive between \$25 and \$30 per share.

The Receivers' statements to the New York Railroad Commission give the following figures for the quarter ending June 30, and the nine months of the fiscal year from Sept. 1 to June 30:

	Quarter—	Nine months—
Earnings.....	\$845,825	\$2,890,247
Expenses.....	1,250,846	3,602,306

Deficit.....\$305,021 \$712,059

Income from other sources.....14,614

Net deficit.....\$305,021 \$697,445

Taxes, rentals, etc.....200,894 455,653

Total deficit.....\$506,005 \$1,153,098

This statement includes nothing for interest, the Receivers taking only current expenses into account.

Norfolk & Western.—The statement for August and the eight months to Aug. 31 is as follows:

	August—	1884—	Eight months—	1883—
Earnings.....	\$250,404	\$228,408	\$1,697,701	\$1,690,735
Expenses.....	145,283	110,532	1,076,526	1,007,787

Net earnings.....\$105,121 \$117,876 \$621,175 \$682,948

Per cent. of exp.....58 48 63 61

For the eight months the gross earnings increased \$36,966, or 2.2 per cent., and the expenses \$68,739, or 4.8 per cent., leaving a decrease in net earnings of \$31,773, or 4.9 per cent.

The statement says:

"The increase of expenses in August, 1885, as compared with August, 1884, was due to the increase in the movement of low-class freights (the mileage of all freights in August, 1885, being about twice that of August, 1884), and to the fact that in 1884 the work of repairs and renewals was reduced to the minimum of current necessity, whereas, during the present season, in anticipation of the expected heavy cattle, coal, and cotton business of the latter part of the year, repairs and renewals have been continuously made and charged currently to expenses."

Northern Central.—This company's statement for August and the eight months to Aug. 31 is as follows:

	August—	1884—	Eight months—	1883—
Earnings.....	\$451,370	\$510,457	\$3,460,865	\$3,608,198
Expenses.....	270,885	291,538	2,126,142	2,269,710

Net earnings.....\$180,485 \$218,889 \$1,334,723 \$1,338,488

For the eight months the gross earnings decreased \$147,339, or 4.1 per cent., and the expenses \$143,568, or 6.3 per cent., leaving a decrease of \$3,765, or 0.3 per cent., in net earnings.

Ohio Central.—The Receiver reports for the year ending June 30 to the Ohio Railroad Commissioners as follows: Gross earnings, \$1,028,055; operating expenses, \$843,727; net earnings, \$184,328; rentals of equipment, etc., \$111,481; net, \$72,847; paid for construction and equipment, \$35,472; surplus, \$37,375.

Old Colony.—This company's engineers have received orders to begin the survey of a line from South Framingham, Mass., to Mattapan, on the Shawmut Branch. The Boston business of the Northern Division has heretofore passed over the Boston & Albany Railroad between South Framingham and Boston, and the object of the company in surveying this new line is understood to be to provide an outlet to Boston over its own line, rendering it independent of all connections with the Boston & Albany. It is stated that the directors of the company have reached a conclusion that the business done is quite sufficient to pay for the construction of the new line, and that a considerable saving can be effected on the cost of doing the business under the present agreement. A little over 20 miles of new road will be required.

Onset Bay.—It will be remembered that this road, which is only a little over a mile long, was built last spring from a connection with the Old Colony road to the camp grounds at Onset Bay, Mass., but that subsequently the operation of the road for passenger traffic was prohibited, on the ground that it had been built without legal authority. Subsequently the Onset Bay Grove Association proceeded to take the necessary steps to make the road legal and applied to the Railroad Commissioners for the proper certificates. The Commissioners, after hearing arguments, have now decided that the road is necessary and have ordered the issue of a certificate to the Association, which will consequently be able to operate the road legally.

Oregon & California.—The full text of the agreement for the sale of this road to the Central Pacific Co. has been published in London. The agreement provides that the completed road owned by the company, including what are known as the East Side and the West Side lines in Oregon and their branches, about 451 miles in all, shall be transferred to the Central Pacific as soon as possible, in any case not later than July 1, 1886, the property to be turned over free from all liabilities. The price of the property is to be \$8,000,000 in stock of the Central Pacific Co., which stock is to carry all dividends declared after July 1, 1886, and \$10,500,000 in bonds, which are to be secured by mortgage on the property, to be issued by the Central Pacific Co. and to have 40 years to run from July 1, 1886, bearing interest at 3 per cent. yearly for two years and 5 per cent. thereafter. The net proceeds of the land grant transferred are to form a sinking fund for the payment of these bonds. The agreement also makes provision for the issue of additional bonds under this mortgage at the rate of \$30,000 per mile for each mile of new road constructed, and also for the issue of \$5,000 per mile for the purpose of renewing the present line with steel rails where now laid with iron. It is agreed that the Central Pacific Co. shall complete the through rail connection between Portland and San Francisco within three years. The \$8,000,000 Central Pacific stock to be issued for the purchase of the road shall be delivered on the transfer of the property, and shall be turned over to the President and Vice-President of the Oregon & California Co. for the purpose of delivery to the stockholders. The bonds shall be issued by the trustees as required to fulfill the agreement. The agreement is to be void unless accepted within two months from its date by the stockholders of the Oregon & California Co. and by the bondholders as represented by the committees now formed in London and Frankfurt.

Oregon Railway & Navigation Co.—Track on the Moscow branch is now laid to Moscow, Idaho, 28½ miles eastward from the old terminus at Colfax and 117½ miles from Palouse Junction on the Northern Pacific road. This branch was graded over a year ago. Moscow is the centre of a farming country, which is rapidly filling up. It is about 5 miles from the Washington Territory line and is the most flourishing town in western Idaho.

Philadelphia & Reading.—The reorganization trustees met in Philadelphia Sept. 25, and held a long session, at which several plans of reorganization were submitted and discussed, but no definite conclusions were reached. Several sub-committees were appointed to consider the various plans.

The Receivers have decided to pay the interest due Oct. 1 on the improvement mortgage bonds, amounting to about \$800,000. No default has yet been made on these bonds, of which about \$9,000,000 are outstanding.

The Receivers' statements give the following figures for the earnings of the railroad for August and the nine months of the fiscal year from Dec. 1 to Aug. 31:

	August—	1884—	Nine months—	1883—
Earnings.....	\$2,940,749	\$3,290,014	\$20,608,305	\$22,583,111
Expenses.....	1,526,756	1,581,822	12,416,157	13,256,745

Net earnings.....\$1,413,993 \$1,717,192 \$8,192,208 \$9,326,366

For the nine months the gross earnings decreased \$1,974,746, or 8.7 per cent., and the expenses \$840,588, or 6.3 per cent., leaving a net decrease of \$1,134,158, or 12.3 per cent.

The traffic of the railroad lines was as follows:

	August—	1884—	Nine months—	1883—
Passengers.....	2,288,489	2,296,192	17,165,835	17,791,926
Tons merchandise.....	781,106	747,976	5,928,889	6,588,291
Tons coal on coll'rs.....	1,266,675	1,416,609	8,617,947	8,359,462
Tons coal on coll'rs.....	49,252	51,783	408,826	392,826

The traffic this year shows a considerable decrease in everything but coal, in which a small gain is reported.

The statement for the Philadelphia & Reading Coal & Iron Co. is as follows:

	August—	1884—	Nine months—	1883—
Earnings.....	\$1,417,888	\$1,918,740	\$10,492,857	\$11,546,798
Expenses.....	1,395,480	1,737,054	10,692,406	11,736,956

Net or deficit.....N. \$22,408 N. 211,686 D. \$199,549 D. \$190,158

Here there was a decrease in gross earnings for the nine months of \$1,053,941, or 9.1 per cent., and an increase in deficit of \$9,391, or 4.9 per cent.

The coal mined from the company's lands was, in tons:

	August—	1884—	Nine months—	1883—
By Coal & Iron Co.....	592,576	640,470	3,565,589	3,313,832
By tenants.....	77,647	74,868	557,360	549,366

Total.....670,173 724,347 4,122,946 3,863,138

The coal mined increased 259,808 tons, or 6.7 per cent., for the nine months, although there was a decrease of 7.1 per cent. in August.

The joint net earnings of the two companies compare as follows:

	August—	1884—	Nine months—	1883—
Railroad Co.....	\$1,413,993	\$1,717,192	\$8,192,208	\$9,326,366
Coal & Iron Co.....	22,408	211,686	199,549	190,158
Total.....	\$1,436,401	\$1,928,878	\$8,391,757	\$9,516,524

*Deficit

The total net decrease for the month was thus \$492,477, or 25.5 per cent.; for the nine months the decrease was \$1,143,549, or 12.5 per cent. The expenses in the statements above do not include anything for interest or rentals, the net earnings being the amounts from which those charges are to be met.

The following circular from the General Manager is dated Philadelphia, Sept. 28: "The Tamaquid Branch, extending from east end of Mahanoy Tunnel to junction with the Nesquehoning Valley Branch at Hawk's Switch, south of Tamaquid, will be opened for business on Sept. 29, 1885. It will be operated as a part of the Mahanoy & Susquehanna Division."

This branch is 3½ miles long, and has been built by the Lehigh Coal & Navigation Co.; it is included in the roads leased to the Reading by that company. It will enable the company to ship coal from the Mahanoy region to New York by a direct line.

Pocahontas & Hoxie.—This company has filed articles of incorporation to build a railroad from Pocahontas in Randolph County, Ark., to Hoxie, the crossing of the Iron Mountain and the Kansas City, Springfield & Memphis roads. The distance will be about 14 miles.

Portland & Ogdensburg.—The City Council of Portland, Me., at a meeting held Sept. 28, considered the plan for the reorganization of this company and finally referred the matter to a special committee. The city of Portland holds a controlling interest in the road, and its consent is necessary to the carrying out of the reorganization.

Rock Island & Peoria.—It is reported that the Rock Island & Mercer County road, recently purchased by this company, is to be extended from its present terminus to Galesburg, Ill., about 30 miles, the intention being to make a short line from Rock Island to Galesburg, and also to reach several coal mines which are on the line of the extension.

Rome & Carrollton.—The grading of this road is now substantially completed from Rome, Ga., southward to Cedartown, on the East & West road, a distance of 21 miles. Track-laying has been begun, and at last accounts the rails were down for about 8 miles, and the company expects to have trains running to Cedartown by the end of October.

Rutland.—The trial of Mr. J. M. Haven, formerly Treasurer of this company, on the charge of making a fraudulent over-issue of stock, began in the court at Rutland, Vt., Sept. 28. It will be remembered that two years ago the management of this company was overturned and an entirely new board of directors and officers chosen. An investigation by the new management showed that there had been an over-issue of stock amounting to about \$40,000, and other mismanagement was also charged. Mr. J. B. Page was tried last spring on charges brought against him by the new management and acquitted. Mr. Haven was indicted at the same time, and his trial on this indictment is now in progress. It is expected to occupy the whole of the present week.

St. John Bridge.—The formal opening of the new cantilever bridge over the St. John River at St. John, N. B., took place Sept. 30. The St. John Bridge Co. and the New Brunswick Railway Co. sent out several hundred invitations to prominent railway men and friends throughout New England and the provinces, and the response was very general. A special train from Boston and Portland arrived at St. John, Sept. 29, bringing President Lord of the Boston & Maine, President Sewall of the Maine Central, Gen. S. C. Lawrence, Payson Tucker, General Manager of the Maine Central; Hon. C. R. Boutelle, Hon. Hannibal Hamlin, W. P. Phillips, W. B. Bacon, S. W. Reynolds, the Maine Railroad Commissioners, and a large number of the officials and invited guests. These, with officials of the Intercolonial Railway, the mayors of Portland and St. John, N. B., the city councils of both cities, officers of the New Brunswick road, provincial dignitaries and others, at 11:30 o'clock on Sept. 30 took a special train from the Intercolonial depot for a general inspection of the bridge. This train being nominally the first to cross the structure, its crossing was attended with due ceremonies. A banquet was served at noon, at which speech-making was in order. The party then proceeded to Rothesay, where it embarked on a steamer for a short trip up the river and through the falls. In the evening the party divided, a portion of it proceeding on to Halifax and other points, and the remainder returning. The new bridge is a fine piece of engineering work, and has cost about \$400,000, much of this amount coming from the

government in the shape of a subsidy. The New Brunswick Railway Co. will operate it, and opened it for regular business Oct. 1.

A description of this bridge was given in our issue for July 24 last, page 465. It gives the railroad system of the maritime provinces for the first time a through connection with that of the United States, without the intervention of a ferry transfer. The approaches from the Intercolonial road on the east side and the New Brunswick Railway on the west side of the river, have required a considerable expenditure.

The bridge is of the cantilever pattern and is a through bridge, this being necessary on account of the clear height above the water required for the passage of vessels.

The entire length of the bridge proper and approaches is 1,280 ft., this distance being made up as follows: Two cantilever spans, 381.6 ft. and 286.2 ft. respectively, one fixed centre span 143½ ft. long, five plate girder approach spans of a total length of 469 ft. The piers are 477 ft. apart, that distance representing the span in the clear, which is 7 ft. more than the celebrated structure across the Niagara River. From low water mark the height of the under side of the bridge is 96.4 ft., being 8 in. higher than the suspension bridge spanning the river just below. The tower at the western end is carried up to a height of 81 ft., while that on the eastern end is 20 ft. less. The stone arms of the cantilever are anchored to I-beams solidly built with heavy masonry, which has a resisting force of more than 2,400,000 pounds. Nothing but the best of material has been used in the construction of the bridge; the steel having been rolled in Germany, England and Scotland, and manufactured at the shops of the Dominion Bridge Co. at Lachine. The cantilever bridge was designed by P. S. Archibald, Chief Engineer of the St. John Bridge & Railway Extension Co., and also of the Intercolonial Railway, who has exercised a general supervision over the entire work of the erection and of the extension. Mr. G. Brown has been the Resident Engineer in the immediate charge of the construction. Mr. F. E. Cane has been the Engineer in charge of erection for the Dominion Bridge Co., with Mr. M. H. Hasler as Foreman of Erection. Mr. M. J. Hogan was the contractor for the masonry of the bridge and for the construction of the connecting railroad.

St. Paul & Duluth.—At a recent meeting of the directors a resolution was passed providing for the erection of new warehouses, coal docks and other terminal facilities at the Lake Superior terminus of the road. Another resolution was passed, leaving to President Fisher the selection of the terminal property on which these buildings are to be erected, leaving it to his discretion to choose the property either in Duluth, near the present terminus of the road at Price's Point, or in West Superior. Should the West Superior property be taken it will be necessary to build a somewhat expensive bridge.

A report that the Chicago, Milwaukee & St. Paul Co. had sold to a syndicate of New Yorkers the stock which it holds in the St. Paul & Duluth Co. is contradicted by the parties concerned, who state that no negotiations whatever have been entered into, and that the Milwaukee & St. Paul Co. has no intention of disposing of its stock.

Southern Pacific.—A difficulty has arisen between Mr. A. C. Hutchinson, General Manager of the Atlantic system, and the locomotive engineers on the line, in relation to the discharge of several engineers for an alleged violation of orders. A committee of the engineers has had several conferences with Mr. Hutchinson, but failed to reach any agreement, and Chief Engineer Arthur and the Grievance Committee of the Brotherhood of Locomotive Engineers have been called on to intervene.

The company makes the following statement for all its leased lines for the month of July:

	Pacific system.	Atlantic system.	Total.	Total.
	1888.	1887.	1888.	1887.
Earnings.....	\$1,874,341	\$612,152	\$2,486,493	\$2,487,246
Expenses.....	753,869	1,140,575	1,894,444	1,358,821
Net earn.....	\$1,120,472	\$201,577	\$1,322,049	\$1,088,425
Rentals.....	130,255	18,520	148,775	148,505
Surplus.....	\$1,008,220	\$183,057	\$1,191,277	\$1,008,920

To the total surplus this year is to be added the rental of the Mojave Division, \$36,355, making the total surplus \$1,227,632. The total gross earnings show an increase of \$29,150, or 1.2 per cent., and the expenses a decrease of \$212,377, or 15.6 per cent., leaving a gain of \$241,527, or 21.9 per cent., in gross earnings.

South Pennsylvania.—Several conferences have been held during the past week, and it is now understood that the opposition of the outside subscribers to the transfer of the road to the Pennsylvania Railroad Co. has been substantially withdrawn. It is also stated that the Pennsylvania Railroad Co. will without doubt complete the road and will resume work on its construction as soon as the transfer is completed.

The suit brought by the Attorney General to enjoin the sale of this road came up in Harrisburg, Sept. 29. The Attorney General asked for an enlargement of the injunction, so as to prohibit the transfer to other parties as well as the Pennsylvania Railroad Co., but the Court refused to grant this motion on the ground that the bill in equity had not been altered to correspond. Subsequently, after discussion, the Court decided to appoint an examiner in the case, allowing him ten days to take testimony on behalf of the state and five days on behalf of the Pennsylvania Railroad Co., and directing him to report to the Court Oct. 20, when the hearing will take place at Harrisburg. The preliminary injunction granted is to remain in force until that time. Counsel for the Philadelphia & Reading Co. asked for an order to take testimony under the separate bill filed by that company, but the Court reserved its decision on this motion.

Texas & St. Louis.—The Bondholders' Committee reports that the money needed for the reorganization under the plan submitted Aug. 28, has all been subscribed, and that holders of about nine-tenths of the outstanding stock and bonds of the road have joined in the agreement of reorganization. The change of gauge from 3 ft. to standard has been decided on, the necessary funds being now secured. The question of extending the road to St. Louis will be decided as soon as the organization is complete.

Topeka, Hiawatha & Chicago.—This company has been incorporated in Kansas to build a railroad from Topeka, Kan., through Hiawatha to Rulo, Neb., about 75 miles, making connections with the St. Joseph & Grand Island and the Burlington and Missouri River roads.

Union Pacific.—It is reported that this company's Utah & Northern branch, from the junction with the Oregon Short Line to Butte, Mont., will be changed from 3-ft. to standard gauge. A number of bridges have been built and renewed lately, and all of them have been of sufficient width for standard gauge, and there is little doubt that the increase in traffic of this portion of the line will soon make the change necessary. It is considered doubtful, however, whether there will be any change made in the portion of the line from Ogden to the junction with the Oregon Short Line, as the local traffic on this section is comparatively small and the through business from the northern end of the line can be

better carried to the main line of the Oregon Short Line from Pocatello than over the old line.

The land sales for August were 138,097 acres for \$360,182. The total sales this year to Aug. 31 were: Union Division, 537,591 acres for \$955,411; Kansas Division, 466,051 acres for \$1,847,505; total, 1,003,642 acres for \$2,802,916. As compared with the sales to the same date last year, there is a decrease of 2,078,438 acres and of \$3,582,300 in amount. The sales in 1884 were exceptionally large.

Wabash, St. Louis & Pacific.—It is stated that at London and New York the assent of \$9,112,000 of the general mortgage bonds to the plan of reorganization had been given. The Purchasing Committee will shortly issue a notice limiting the time in which bondholders may assent to the plan. The notice will probably be for a month.

West Jersey.—This company's statement for August and the eight months to Aug. 31 is as follows:

	August.	1884.	1885.	1884.
Earnings.....	\$212,638	\$223,367	\$892,937	\$929,409
Expenses.....	93,012	101,542	537,050	542,256
Net earnings.....	\$119,626	\$121,825	\$355,887	\$387,153
Interest, rentals, etc.			218,504	224,274
Surplus.....			\$137,374	\$162,879

For the eight months the gross earnings decreased \$36,472, or 3.9 per cent., and the expenses \$5,197, or 0.9 per cent., leaving a decrease in net earnings of \$31,275, or 8.1 per cent. Fixed charges decreased \$5,670, or 2.5 per cent., leaving a decrease of \$25,605, or 15.7 per cent., in the surplus remaining.

Worcester, Nashua & Rochester.—Reports have been in circulation for some time that the present management of this company had discovered extensive stealing by parties connected with the former management. It is now stated that, while some speculation has been discovered on the part of the employees of the road, no charge of dishonesty is made against any one prominently connected with the road. It is, however, charged that the management has been very lax, and that opportunities were given for dishonesty on the part of the agents and other employees which would not be possible where a proper system of accounting and supervision was maintained.

ANNUAL REPORTS.

The following is an index to the annual reports which have been reviewed in previous numbers of the current volume of the *Railroad Gazette*:

Page.	Page.
Alabama Great Southern.....358	Louisville & Nashville.....560
Allegheny Valley.....559	Maine Central.....36
Alliance, Niles, & Ash.....576	Marquette, Hough, & Ont. 277, 391
Ashland & Pittsburg.....573	Mason & Cleveland.....578
Atchafalpa, Top. & Santa Fe 162, 282	Memphis & Charleston.....527
Atlantic & Pacific.....448	Mexican Central.....229
Atlanta & West Point.....495	Michigan Central.....285
Baltimore & Annapolis.....407	Min. & Greenwood Lake.....571
Belt Ry. of Chicago.....431	Minneapolis & St. Louis.....511
Boston, Concord & Montreal.....342	Missouri, Kansas & Texas.....528
Boston, Housat. & West 151, 569	Missouri Pacific.....87, 528
Boston & Lowell.....22	Mobile & Canton.....496
Brunswick & Western.....101	Montpelier & Wells River.....480
Buffalo, N. Y. & Phila.....58	Nash., Chattanooga & St. L.....624
Burr, Cedar Rapids & No.....608	Natches, Jackson & Col.....71
Camden & Atlantic.....162	New Britain, New Castle.....376
Canadian Pacific.....407	New Castle & Beaver Vt.....576
Carolina Central.....310	New Haven & Northampton.....82
Central Iowa.....215	N. Y., Chicago & St. Louis 151, 411
Central Pacific.....128, 479	N. Y. & Greenwood Lake.....571
Central Vermont.....342	N. Y., N. Haven & Hartford.....407
Charlotte, Col. & Augusta.....384	N. Y., Ontario & Western.....7
Chattanooga & Lookout.....448	N. Y., Pennsylvania & Ohio.....407
Chesapeake & Potomac.....545	Pr. & Eastern.....323
Chesapeake, Ohio & W.....512	N. Y. Railroad Commission.....31
Cheshire.....101	N. Y., Susquehanna & West'n.....359
Chicago & Alton.....133	N. Y., West Shore & Buffalo.....317
Chicago & Burlington.....228	Norfolk & Western.....317
Chil., Burlington & St. P.....107	Northeastern (South Carolina) 151
Chil. & Northwestern.....496	Northern Central.....185
Chil., Rock Island & Pac.....324, 432	Northern (New Hampshire).....325
Chil., St. Louis & Pittsburgh.....544	Northern Pacific.....724
Chil. & Western Indiana.....431	Pennsylvania Company.....576
Chil. & West Michigan.....562	Northwestern Ohio.....479
Cin., Hamilton & Dayton.....407	Ogdensburg & L. Champlain.....479
Cin. & Muskingum Valley.....448	Pacific Mail Steamship Co.....343
Cin., N. Orleans & Tex. Pacific.....183	Panama.....544
Cle., Col. & Ind.....213	Pennsylvania & New York.....464
Cle., Lorain & Wheeling.....342	Pennsylvania Railroad.....160
Cle., & Pittsburgh.....576	Peoria, Decatur & Evans.....214
Columbia & Greenville.....406	Petersburg.....183
Concord.....324	Philadelphia & Reading.....37, 53
Conn. & Passumpsic Rivers.....592	Phila., W. & Balt more.....192
Connetquot Valley.....71	Pitts. & Castle Shannon.....125
Cumberland Valley.....500	Pitts., Cincinnati & St. L.....448
Del. & Hudson Canal Co.....101, 343	Pitts., Ft. W. & Chic.....342, 480, 576
Del., Lacka. & Western.....134	Pittsburgh & Lake Erie.....37
Denver & Rio Grande.....432	Pitts., Wheeling & Ky.....445
Detroit, Lansing & No.....608	Portland & Rochester.....263
Eastern R. R. Association.....273	Portland & Ogdensburg.....263
East St. L. & Carondelet.....576	Richmond & Allegheny.....229
Eliz. L. & Big Sandy.....511	Rich. & West Pt. Terminal Co 263
Eliz. & Pittsburg.....576	Rochester & Pittsburg.....71
Empire State.....23	Rome, Wat. & Ogdensburg.....7
Flint & Pere Marquette.....502	Rutland.....479
Fort Worth & Denver City.....37	St. L., Alton & Terre Haute.....480
Galveston, Houston & Hen.....428	St. L., Iron Mountain & So.....328
Georgia Pacific.....357	St. L. & San Francisco.....343
Georgia Railroad.....391	St. L., Vandalia & Terre Haute 198
Grand Trunk.....377	St. Paul & Duluth.....134
Green Bay, Winona & St. P.....523	St. Paul, Minn. & Man. West.....347
Gulf, Colorado & Santa Fe.....391	Savannah, Florida & W.....394
Han. Junc. Han. & Gettysburg 391	Seaboard & Roanoke.....205
Hartford & Conn. Western.....71	Shenandoah Valley.....480
Housatonic.....167	South Carolina.....183
Huntingdon & Brocton Top 101	Southern Pacific (Cal.).....368
Illinois Central.....53, 134	Terre Haute & Indianapolis.....108
Indianapolis & Vincennes.....528	Texas & New Orleans.....347
International & Gt. Northern.....528	Texas & Pacific.....167, 527
Iowa.....511	Toledo, Ann Arbor & N. Mich. 204
Jeff. Madison & Indianapolis 576	Troy & Greenfield.....407
Kan. City, Ft. Scott & Gulf.....512	Union Pacific.....190
Kan. City, Spring & Memphis.....512	Utah Central.....325
Kentucky Central.....214	Utica & Black River.....128
Lake Shore & Mich. So.....294, 310	Vicksburg & Meridian.....391
Lawrence.....213, 579	Virginia Midland.....27
Lehigh Coal & Navigation Co. 128	Western North Carolina.....247
Little Miami.....448	Wilmington & Northern.....479
Little Rock & Fort Smith.....544	Wisconsin Central.....432
Long Island.....21	Worcester, Nashua & Roch.....7
Louisiana River.....527	York & Peachbottom.....310
Louisiana Western.....247	

Grand Rapids & Indiana.

This company owns a line from Fort Wayne, Ind., northward to the Straits of Mackinaw, Mich., 366.59 miles, with 29.88 miles of branches; a total of 396.47 miles, with 69.36 miles of sidings. The main line includes the Grand Rapids, Indiana & Mackinaw road, 34.11 miles, formerly worked under lease, but last year consolidated. The report is for the year 1884.

The company also leases the Cincinnati, Richmond & Fort Wayne, from Fort Wayne to Richmond, Ind., 85.60 miles; the Traverse City road, a branch to Traverse City, Mich., 26 miles, and the Bay View, Little Traverse & Mackinaw, a branch to Bay View, Mich., 5.70 miles. The accounts of these leased lines are stated separately.

The equipment consists of 56 locomotives; 38 passenger and 20 baggage cars; 798 box, 50 stock, 1,115 flat and 40 caboose cars; 2 special cars, 2 wrecking and 2 derrick cars, 1 pile-driver and 5 snow-plows.

Under the agreement made with the Pennsylvania Railroad Co., there were issued \$3,000,000 new 6s having 15 years to run, and \$13,000,000 general mortgage 5s. Of the \$3,000,000 bonds, \$2,700,000 were turned over to the Pennsylvania

Co. in settlement and \$300,000 were given as collateral for the Mackinaw notes. Of the general mortgage bonds \$484,000 were paid to the Pennsylvania Railroad Co.; \$2,500,000 were used to redeem income bonds; \$8,500,000 were reserved to pay for other bonds maturing, and \$1,516,000 were reserved for betterments as needed.

The general account is as follows, condensed:

Stock.....	\$4,985,081
Funded debt.....	11,292,000
Mackinaw loan.....	275,000
Accounts and balances.....	350,021
Total.....	\$16,902,102
Road and equipment.....	\$13,722,217
Stocks owned.....	49,558
Sinking fund.....	18,535
Supplies on hand.....	146,945
Accounts and balances.....	294,548
Cash.....	355,108
Profit and loss, balance.....	2,315,131
	16,902,102

The funded debt includes \$1,010,000 firsts; \$431,000 land-grant firsts; \$3,934,000 land-grant firsts guaranteed; \$2,700,000 new 6s and \$3,217,000 consolidated 5s.

The result of the year's operations was as follows:

Net earnings, as shown below.....	\$613,720
Interest on funded debt.....	\$387,008
Other interest.....	53,621
Losses and advances, leased lines.....	31,497
Interest charged on coupons of previous years.....	95,416
	567,602

Balance, surplus for the year.....\$46,118

The item of interest charged on coupons of previous years includes \$89,075 for interest upon the debt to the guarantor for coupons of years previous to 1884; both coupons and interest are included in the general settlement.

The earnings for the year were:

	1884.	1883.	Inc. or Dec.	P. c.
Freight.....	\$1,324,186	\$1,443,501	D.	\$119,315 8.3
Passengers.....	665,515	809,616	D.	\$144,101 17.8
Mail and express.....	59,410	58,397	I.	1,013 1.8
Other.....	67,188	50,092	I.	17,096 34.2
Total.....	\$2,116,299	\$2,361,606	D.	\$245,307 10.4
Expenses.....	1,502,579	1,721,507	D.	218,928 12.7
Net earnings.....	\$613,720	\$640,099	D.	\$26,379 4.1
Gross earn. per mile.....	5.337	6.063	D.	7.26 11.9
Net ".....	1.548	1.643	D.	.95 5.8
Per cent. of exps.....	71.0	72.0	D.	1.9

Expenses were reduced as far as possible with safety, but the reduction was not equal to that in expenses. Renewals included 4,177 tons steel rails, and all of the main line now with iron rails will be renewed with steel during the current year.

Heretofore betterments have been charged to expenses; last year they were not so charged, but paid out of the fund provided for that purpose. The amount of these betterments was \$88,808, the chief item being \$40,292 for new equipment.

The road and equipment have been kept in good condition, and are ready for the increased business which is expected hereafter.

The traffic for the year was as follows:

	1884.	1883.	Inc. or Dec.	P. c.
Train-miles.....	683,891	673,774	I.	11,115 1.6
Passenger.....	968,732	980,647	D.	11,915 1.4
Other.....	364,412	414,508	D.	50,096 12.1
Total.....	2,015,035	2,068,931	D.	53,896 2.6
Pass. car miles.....	2,765,152	2,765,152	I.	112,218 4.1
Freight car miles.....	16,080,603	16,019,781	I.	60,822 3.8
Passengers carried.....	913,181	1,033,854	D.	120,673 11.6
Passenger-miles.....	26,222,364	30,967,525	D.	4,745,161 15.3
Tons freight carried.....	778,018	779,341	D.	1,323 1.4
Ton-miles.....	100,197,431	102,754,949	D.	2,557,518 2.5
Av. train load.....	38.3	46.0	D.	7.7 16.7
Freight, tons.....	103.5	104.7	D.	1.2 1.1

The average train was 4.21 passenger or 16.63 freight cars. Of the freight car mileage, 31.9 per cent. was of loaded cars. The average passenger journey was 28.7 miles; the average freight haul 130.5 miles.

The earnings per passenger-mile and per ton-mile were, in cents:

	Per pass. mile.	Per ton-mile.
1884.....	2.538	1.322
1883.....	2.614	1.392
Earnings.....	2.037	1.988
Expenses.....	0.501	0.636
Net earnings.....	0.501	0.636
	0.636	0.355

The earnings per train-mile were \$1.28; expenses, \$0.91; net earnings, \$0.37, being a decrease of 2 cents, or 5.1 per cent., from the previous year.

The operations of the three leased roads were as follows:

CINCINNATI, RICHMOND & FORT WAYNE.	
The operations of this road were as follows:	
Earnings (\$4.542 per mile).....	\$388,768
Expenses (83.6 per cent.).....	325,196
Net earnings (\$743 per mile).....	\$63,572
Other income.....	393
Total.....	\$63,965
Interest.....	164,355
Loss for the year.....	\$100,391

The total deficit to the close of the year was \$908,631. Trains ran 393,145 miles, carrying 187,799 passengers 4,327,102 miles and 320,308 tons of freight 21,654,738 miles. The average receipt per passenger-mile was 2.665 cents and the deficit 0.362 cent; the average receipt per ton-mile was 1.182 cents gross and 0.285 cent net.

TRAVERSE CITY.

The earnings of this branch for the year were:	
Earnings (\$1.156 per mile).....	\$32,039
Expenses (94.7 per cent.).....	30,364
Net earnings (\$65 per mile).....	\$1,695
Interest on bonds.....	7,380
Deficit.....	\$5,685

The total loss on this branch to the close of the year was \$188,104. Trains ran 41,948 miles, carrying 31,272 passengers 606,063 miles and 20,690 tons of freight 366,451 miles. The average rate was 2.775 cents per passenger-mile and 3.191 cents per ton-mile, the deficit per passenger-mile being 0.473 cent, and the profit per ton-mile 0.278 cent.

BAY VIEW, LITTLE TRAVERSE & MACKINAW.

The earnings of this road for the year were:	
Earnings (\$857 per mile).....	\$4,883
Expenses (177.9 per cent.).....	8,867
Deficit.....	\$3,804
Interest on bonds.....	1,500
Total deficit.....	\$5,304

The total loss to the close of the year was \$13,208. On this road trains ran 19,597 miles, carrying 30,020 passengers 173,550 miles and 1,848 tons of freight 9,949 miles. The average receipts were 1.785 cents per passenger-mile and 9.918 cents per ton-mile, the loss being 1.793 cents per passenger-mile and 14.991 cents per ton-mile.